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CONTENTS.

	PAGE.
Points for Producers	202-207
Inquiry Department	208-211
Agricultural Experiments - Report for the Year 1921-1922	212-224
Notes on Two Vine Diseases which Occurred on the River Murray in October, 1921	225-230
Orchard Notes for Southern and Northern Districts	231-232
Vintage, 1922	233
The Agricultural Bureau of South Australia—Thirty-third Annual Congress	234-239
River Murray Herd Testing Association	239
The Agricultural Bureau of South Australia — Conference of Southern Branches, and at Cleve	240-243
Advisory Board of Agriculture	244-248
Dairy and Farm Produce Markets	250
The Agricultural Outlook	251
Rainfall	252-253
Agricultural Bureau Reports	254-296

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"The Editor, Journal of Agriculture, Victoria Square, Adelaide."

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T. PASCOE,

Minister of Agriculture.

POINTS FOR PRODUCERS.

Maize at Kybybolite.

The results of growing maize for corn under irrigation conditions at Kybybolite Experimental Farm are now available. The area originally sown on 25th and 26th of October was 5·31 acres; unfortunately, caterpillars invaded the crop in November, and portion of the area was resown on the 9th and 10th of December. This proved too late for corn, and was cut as green feed for cows. The area harvested was 4·15 acres.

The crop was irrigated as follows:—

December 23rd to 30th	3·00 acre—inches
January 17th to 24th	3·36 "
February 16th to 25th	3·76 "
	10·06 acre—inches
November-March—Rainfall	5·39
Total moisture received	15·46 acre—inches

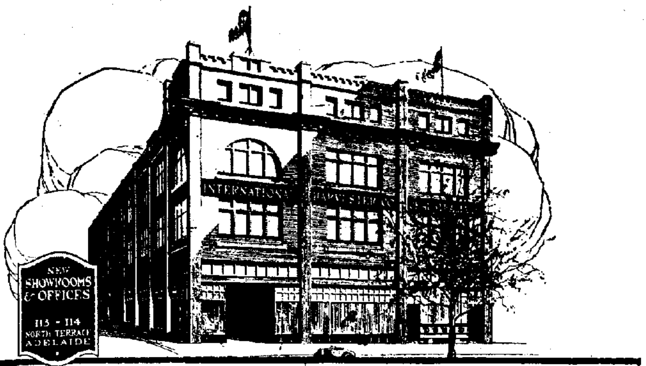
The whole of the crop was dressed with 2cwts. of bonedust to the care; portion of it, block A (2·5 acres), was heavily dressed with stable manure.

Yields were as follows:—

	Block A. (Stable manure)	Block B. (Bonedust only)
Early Yellow Dent	63·9 bush.	—
Improved Yellow Dent	60·86 "	37·42 bush.
Boone Country White	60·80 "	—
Red Hogan	—	46·26 "
Silvermine	—	36·40 "
Total area	62·26 bush.	39·80 bush.
Mean total yield	51·88 bush.	

Brown Rot Affecting Citrus.

From practically all parts of the State where oranges are grown, reports of the loss of fruit from the attack of a mould have been received. The outward manifestations of the disease are the growth of whitish mould on the fruits whilst they are still hanging on the trees. The fruits on the lower portions of the trees are more particularly affected. Microscopic examination reveals that this mould growth is emerging from softened patches on the skin. After it has persisted for some little time the blue tinge of the common blue mould (*penicillium*) becomes very prominent. This leads one to imagine that the attack on the fruit has been primarily due to this well known and widely spread fungus. Investigations in the laboratory of the Vegetable Pathologist upon fruit supplied by the Horticultural Branch of the Department of Agriculture, however, indicate that the primary causal organism is not the common blue mould, but a fungus closely related to the Irish blight of potatoes and the downy mildew of the grape vine. It is



I.H.C. DEVELOPMENT IN SOUTH AUSTRALIA

Following our policy of providing for the farmer in all important Australian city centres showrooms for the display of our full range of farm machines and implements, we have acquired a notable building at 113-114, North Terrace, Adelaide. The accompanying illustration shows that much greater accommodation is here afforded than we occupied previously at number 141 in the same thoroughfare.

Within the past 12 months we have made many notable additions to our premises in Australia. The expansion may be said to have begun with the establishment of new showrooms and offices at Sydney and the erection of the largest farm implement assembling plant in the Commonwealth at West Concord, New South Wales.

This notable expansion has more recently been followed by a new assembling plant at Spotswood, Victoria, which is the biggest and best-equipped plant of its kind in that State.

These progressive moves have now been followed by our occupation of the fine building in North Terrace, Adelaide, already mentioned. The property is directly opposite the main Adelaide Railway Station, which is the most convenient centre for farmers visiting Adelaide, and comprises spacious and well-lighted showrooms on the ground floor, with offices above. In addition, we have reserved space at the rear of the building for our rapidly growing motor truck business, and this will be used as a service station for all owners of International motor trucks.

We realise the great importance of South Australia as a grain and fruit producing State, and we have made this move with a view to giving full play to the development of our business in this part of the Commonwealth.

In addition to these new showrooms and offices we retain our long-established warehouse at Port Adelaide, where machines are assembled for despatch throughout the country. The location of the assembling plant at Port Adelaide enables us to send out machines and implements promptly by boat or rail as required.

With this increased accommodation, together with our large assembling facilities at the Port, we are now effectively equipped to cope with all demands.

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In the International line of farm machines and implements, you will find everything needed to equip your farm with the most modern labor-saving and profit-making machines. International machines have been especially designed to meet the requirements of Australian farmers. They are built to meet Australian conditions exactly.

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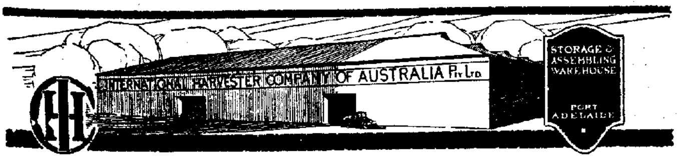
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known and studied in California as the brown rot of the lemon, and it is technically referred to as *Pythiacystis citrophthora*. This fungus, like most of its class, germinates and displays considerable activity only in the presence of moisture. It is able to enter the fruit through the stomata or breathing apertures. When under the influence of this fungus the breaking down of the cell tissue has proceeded sufficiently to injure the skin, the blue mould finds an opening and rapidly begins to destroy the fruit. Microscopic examination has failed to reveal the presence of any of the spores of the fungus on the fruit whilst it is still on the tree, but after it has fallen to the ground, the spores are formed freely. American investigators claim that the spores reach the fruit by being splashed off the ground by rain, or moisture dripping from the foliage, but there is considerable room for belief that they may be air-borne to limbs higher on the tree than could be reached by splashing as suggested. The method of control recommended is to cover the surface of the soil with a green growth during the time the crop is maturing, and so avoid splashing or disturbing the surface of the soil. American experience has demonstrated that washing with a solution of 1lb. of bluestone in a thousand gallons of water is sufficient to check the development of the disease. Citrus growers in South Australia, therefore, might find it desirable to wash their fruit in such a solution prior to packing. It would be necessary, of course, to allow the moisture to dry off the skin of the oranges before they were cased up, but that would be a relatively simple matter when weighed in the balance against the loss that is being experienced in depots where fruit is being stored prior to distributing, particularly in the case of fruit from the Murray Valley District.

Table Poultry.

Although poultry foods (wheat, bran, pollard, &c.) have been very dear since 1914, the excellent prices realized in the Adelaide market for table poultry have afforded fair profits to producers. Poultry should play an important part in our diet, especially in the hot months. Suburban householders should grow their own supplies, and to insure this there should be two breeding seasons—in autumn and again in spring. In addition to the requirements of the local market, there is a big demand in England. One of the leading poulterers in London recently wrote to the poultry branch of the Department of Agriculture asking what prospects there were of any shipments being forwarded from this State, and promising good prices. Any of the heavy or medium sized breeds will supply good table birds. The Poultry Manual issued by the department deals very fully with breeding, rearing, and fattening table poultry of all sorts.

Bonus for Olive Tree Planting.

With the object of stimulating the cultivation of olives in this State, the Government offers to pay, for a period of 10 consecutive years, a subsidy of 10s. per annum for each new acre planted to olive trees. Intending growers who desire to take advantage of this subsidy are required to give notice to this effect to the Department of Agriculture 12 months prior to the proposed planting season. The trees must be of approved varieties, or if seedlings or wild olives are planted out, provision must be made to graft them to approved sorts. The distance apart at which the trees are to be spaced and the nature of planting operations will be indicated by the Department

Agriculture. In the second and all subsequent years of subsidy, tillage d cultural operations must be on lines indicated, and the shaping and ıning of the tree during the whole period must be carried out to the satis- tion of the department. This offer continues open until specifically wit- ıwn by notice in the public press. Those who may have acquired rights der the present offer and continue eligible for additional subsidy, will t forfeit any of these rights should the offer be withdrawn at any time.

e Lucerne Flea.

The lucerne flea, which is reported to have been the cause of considerable mage in many parts of the State, is being made the subject of investigation the Horticultural Branch of the Department of Agriculture working in njunction with the Museum Entomologist. The life history and habits the insect are being observed, and experimental tests are being made with spraying contrivance designed and manufactured locally.

afting Grape Vines.

The bursting buds on the grape vine are an indication that the time for afting over any unsuitable varieties with the ordinary cleft graft is at hand. is usual to allow the shoots to grow 3in. or 4in. in length before the operation performed. That growth, however, takes place very rapidly after green lor is seen on the winter buds. The object of allowing this development leafage is to permit the passing of that stage at which there is a great fusion of crude sap from any cut surface of the vine. If the grafting is ne whilst this crude sap exudes freely, the point of contact between the ion and the stock is flooded, and the union is less likely to take place. The ethod found most effective consists of sawing off the vine at about ground vel, or 1in. below the surface. To do this a small excavation must be made ound the trunk. The stem is then split, care being taken to follow the tural grain as revealed by the cut surface. If the stocks are crossgrained d will not split evenly, it is desirable to cut with a saw to a depth of [illegible]in. r more before using a chisel or grafting tool. When the split has been ade to a depth of about a couple of inches, the two sections should be held part by a wedge inserted in the centre of the stock. If the edges, where e sap layers are located, are ragged, they should be trimmed with a sharp nife. The scions, which should have been preserved in moist soil, can then e taken up, and a selection made of those portions on which the buds show o signs of movement. These should be cut into sections, each consisting f two buds and two internodes, the lower internode having no bud at its ase. Well ripened, straight, short jointed wood is best for use as scions. he scion is prepared by cutting the lower internode to a wedge shape. The west bud should stand on the outside of the scion and the bevelled surface f the scion should point wedgelike towards the centre of the stock when tted into place. Scions should then be pushed down into the slit in the tock, one on each side ; care should be taken that the barks of the thin arked scion and the thicker barked stock meet over as long a surface as ossible. When both scions are fitted in this manner the wedge can be ithdrawn carefully, and the separated halves of the stock should spring ogether and clamp the scions in position. Binder twine, or some similar ind of string, should be used to tie around the sections where the scions join with the stock. Then a stake should be placed alongside the vine and pulverized soil, free from weeds and green grass, should be used carefully to raise a mound, which should cover the stock and scions for several inches above the tops of the latter. This should leave a conical mound with a base about 18in. across. The stake is to prevent displacement of the scions, and the reason for covering the whole with a mound of earth is to prevent the dry air evaporating the moisture too rapidly to allow the union to take place. This, according to the Horticultural Branch of the Department of Agriculture, is a cheaper method than that of using wax or clay. Should dry weather intervene, no water should be applied at this stage, providing the subsoil is moist. When shoots appear, it is desirable to remove carefully sufficient of the mound to enable one to see whence the shoots arise. Usually they come from the stock, and in such cases they should be suppressed carefully. The mound should them be remade. Generally the second development of shoots is from the scions, though possibly some may come from the stock. The latter should be removed. Should both scions grow, they should be allowed to develop throughout the first winter and the surplus one should be cut out at the second winter pruning.

Experimental Plots at Coonalpyn.

In various parts of the State the Department of Agriculture is conducting experimental plots. Generally these are undertaken at the request and with the co-operation of the local Branch of the Agricultural Bureau. The actual work is done by a local farmer, working in conjunction with departmental officers. In 1919 a series of rotation of crops experiments was laid down for the Coonalpyn Branch of the Agricultural Bureau on the property of Mr. F. Tregenza. The main objects of these particular plots are to determine means for the control of " take-all," which at present plays havoc in the wheat crops of the district, and to demonstrate means of increasing the livestock carrying capacity of the land. A five-course rotation has been adopted. The plots consist of five areas each five acres in extent. They are being worked on the following system :—Bare fallow—wheat—oats—sown pasture—pasture. Both the wheat and oat crops are being dressed with superphosphate at the rate of 1cwt. per acre. The grazing crop consists of 10lbs. Wimmera rye grass, 2lbs. Subterranean clover, and 2lbs. rape, which mixture is sown without manure after the oat stubble has been lightly cultivated. The crops harvested during 1921 yielded in the case of wheat 20bush. 55lbs., and in that of oats, 23bush. 26lbs. In the previous year, 1920, the wheat crop was so badly affected that it has to be cut for hay, and yielded 10cwts. 30lbs. to the acre. The yield of oats in that year was 16bush. 13lbs.

Cotton in South Australia.

The Department of Agriculture has kept in close touch with the experimental tests in cotton culture which were conducted in this State last season. Observations have led to the results being summarised as follows :—(1) That cotton can be grown to a very great degree of perfection under irrigation in the valley of the Murray. (2) That a higher yield per acre is obtainable under the conditions mentioned than under non-irrigated conditions in most other countries. (3) That to ensure the production of a satisfactory crop the ground must be in a good average state of fertility, and worked up a good condition of tilth, which must be maintained throughout the growing riod of the plant. The Horticultural Branch of the Department of Agrilture advises those who propose to grow cotton this year to sow it in oroughly well-prepared ground, which has been irrigated within a day or o of the sowing. The sowing should be carried out during the latter end September or the early part of October. If it is left later the period of rvesting is projected too far into the winter season, and clashes with other erations carried on in the orchard and vineyard. The seed may be sown hand in drills about 3ft. 8in. apart to a depth of 1in. Two or three seeds ould be dropped at intervals of 1ft. along the rows. The seeding may o be carried out by means of a drill capable of being adjusted to meet quirements. The latter course, however, appears to necessitate a certain ount of hand work in covering up seeds which the drill fails to cover comtely. One fact outstanding with cotton, as with most summer crops, that the ground should be sufficiently moist at the time of seeding to cause e seed to germinate and sprout through the soil. It has been found better have the soil well-moistened before sowing, rather than to moisten it after e seed is planted. No one who is unwilling to undertake hand hoeing scarifying between the rows a number of times should attempt to grow is crop.

dium.

Grape vines are now bursting into activity, and in many of the warmer sitions shoots several inches in length may be noticed. Growers of vines hich have been attacked by oidium in the past would do well to take steps this time to prevent the development of this disease. Experiments carried it by the Horticultural Branch of the Department of Agriculture indicate at spraying with lime sulphur compound of any of the ordinary proprietary ands on the market at the rate of 1gall. in from 80galls. to 100galls. of ater affords efficient protection against this disease. It has an advantage er dusting with dry sulphur, viz., in the event of the spring remaining cool appears to operate, whereas the sulphur powder requires high sun temperares to start it into activity as a fungicide.

uality in Eggs.

The annual loss to the State through rejected eggs is very considerable. f the eggs reaching Adelaide from the country less than one-third are fit r overseas export. This state of affairs is not creditable either to the roducer or to the country egg collectors. A sound export trade cannot be uilt up while the majority of the eggs arriving in the city are of such doubtful uality. The Poultry Branch of the Department of Agriculture advises wners to pen all male birds securely as soon as the breeding season is over. hen the infertile eggs produced by the hen will be much superior in quality. uring warm weather eggs should be collected twice a day and stored in a ool cellar and sent into market twice a week. Those who cannot market ggs in fresh condition are earnestly advised not to keep poultry, as such eople are a drag on the industry. With a supply of first quality eggs a uge export trade could soon be built up. As a proof of the losses producers uffer through marketing inferior eggs it may be pointed out that guaranteed resh infertile eggs range in price wholesale in Adelaide from 2d. to 6d. a dozen ccording to the time of the year over market quotations, which are for ountry eggs.

INQUIRY DEPARTMENT.

Any questions relating to methods of agriculture, horticulture, viticulture, dairying, &c., diseases of stock and poultry, insect and fungoid pests, the export of produce, and similar subjects, will be referred to the Government experts, and replies will be published in these pages for the benefit of producers generally. The name and address of the inquirer must accompany each question. Inquiries received from the question-boxes established by Branches of the Agricultural Bureau will be similarly dealt with. All correspondence should be addressed to "The Editor, *The Journal of Agriculture*, Adelaide."

[Replies supplied by Mr. C. A. LOXTON, B.V.Sc., Government Veterinary Surgeon.]

"D.S.," Mount Gambier, reports death of cows. Unable to "throw up" cud, constantly lying down and getting up, staggering gait, and occasionally lost control limbs. Tongue hanging out, breathing heavy, and suffering very heavy cough.

Reply—The trouble appears to be toxaemia, which may have been due to contaminated fodder; and the fact that you had four deaths after destroying it is not unusual, as the disease sometimes takes several days to develop. This form of poisoning may also be caused by cattle chewing bones or portions of dead animals. For this reason it is advisable to supply salt and bonemeal to prevent the bone-chewing habit. This may be given in the feed at the rate of 1oz. of each twice daily, or may be supplied in the form of a lick. Remedial treatment is not encouraging, particularly in the acute form of the disease. Do not drench, on account of the difficulty in swallowing and consequent danger of the medicine going down the windpipe. Give powdered nux vomica, one flat teaspoonful twice daily, mixed with a little treacle and placed on the tongue. A well-balanced ration is necessary. See that all forage is of good quality.

"A.E.B.," Denial Bay, has five-year old gelding shows signs of losing coat. Swollen and moist legs, and the sheath has a rough appearance. Difficulty in passing water.

Reply—I would advise the following treatment:—Give 1 pint of raw linseed oil, to which add 1oz. turpentine. Administer as a drench. Afterwards obtain some Fowler's solution of arsenic and give one tablespoonful twice daily in chaffed food. Continue the latter for seven days and then discontinue for a few days, then repeating. Dust on the moist patches a mixture composed of zinc oxide powder, 2ozs.; boracic acid powder, 2ozs.

"J.H.V.," Mount Hope, has 10-year old stallion with large swellings on both sides of the wither.

Reply—Your animal is no doubt suffering with a fistulous wither. These generally tend to heal up and then break out again. An operation is the only satisfactory way. A good lotion to apply when the swelling first appears is the following:—Lead acetate, 1oz.; zinc sulphate, 1oz.; water, 1 pint. Shake and apply to swelling when first forming. Treatment—I should advise you to apply a blister, and afterwards to have the swelling opened at the lowest point so that drainage can be established and the dead tissue removed. They are generally difficult, and have a tendency to recur when put to work.

"F.C.B.," Milang, has chestnut gelding with swollen penis.

Reply—The animal is suffering from paralysis of the organ, and I would advise the following treatment:—Keep organ and surrounding parts thoroughly clean by washing with warm water and soap, and get rid of scabs and debris. Suspend the organ in a wide web bandage by passing over loins and under penis a couple of times, and keep bandage tight. Get from the chemist the following powders, giving one twice a day by putting on tongue:—Strychnine sulphate, 1 grain; sugar, powdered, 10 grains. Make 14 powders. When all powders are finished, allow three days to elapse and repeat the treatment for four more days.

"R.K.S., Robe," asks treatment for sow totally blind.

Reply—The condition is hopeless from the curative point of view, as the condition is probably the result of absorption of poisons or toxines as a result of farrowing, which have affected the nerves governing the sight, or may be due to a clot present in blood vessels leading to eyes. Too long a time has elapsed for treatment to produce results.

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"E.E.B.," Waterloo, has several cows with hard quarters of the udder and clots of pus in milk.

Reply—Your cows are affected with mammitis, which can be either acute or chronic in character. Acute cases can be dealt with more chance of success than chronic, as in the latter case you have a change in the tissues of the udder, the udder feeling much harder and firmer than normal. Treatment consists in—1. Milking out the affected quarters as often as possible. 2. Applying hot water to the quarters three times a day for five minutes. 3. Rubbing quarters with camphorated oil after applying hot water. Keep the animals suffering from mammitis away from the other cows, and milk healthy cows first before going on to the affected animals. Burn the milk from the affected quarters and keep hands clean by washing after each cow has been milked, and leave affected quarters to the last.

"W.B.H.," Bletchley, reports horse with sore on shoulder which will not heal.

Reply—The parts surrounding the sore should be clipped and thoroughly washed with soap and warm water, and then the edges of the sore should be lightly scarified with a knife to get rid of the hard calloused edge; but I would advise that a careful examination be made to see that the centre of the sore is not connected with a small pipe from which oozes a small quantity of matter. If the latter is present, the pipe would have to be destroyed by casting the horse and cutting it out, or treating it by inserting a small stick of lunar caustic or a solution of bluestone once daily.

"H.A.B.," Alawoona, has foal with white spec in the middle of the eye.

Reply—Foal has a piece of chaff in the eye, which is the cause of the white scum developing around it. The chaff must be removed before the scum will disappear. Procure the following lotion:—Zinc sulphate, 2 grains; water, boiled, 2ozs. Drop three or four drops into the eye twice a day with an eyedropper or tip of a clean feather. If you have a local doctor you might get from him a solution of cocaine and drop some of it in the eye, and after five minutes very carefully try and detach the chaff by means of a piece of wet cotton wool held in a pair of forceps.

"M.T.G.," White's Flat, reports cow's udder very hard before calving. Same condition prevailed after calving. Curds passed through teats. Hard to extract milk.

Reply—The trouble was one of mammitis (inflammation of the udder). This is by no means uncommon. The condition of fore-quarters is one of chronic mammitis, the back quarters have no doubt recovered from an acute attack. Care will be required at next lactation. Treatment:—Hot foments. Application of camphorated oil, or again hot antiphlogistine is a most excellent application. At the same time give laxatives, such as 1lb. Epsom salts; ginger, powdered, 2ozs.; treacle, 4ozs.; add 1 pint warm water and give as a drench.

"Messrs. L. & L.," Macclesfield, have Jersey cow whose coat is coming off in patches.

Reply—It is probably parasitic. Apply a wash of kerosene emulsion made by dissolving 1lb. of soap in a gallon of hot water, and adding 1 pint of kerosene, stirring the latter in thoroughly, or, if not objectionable on account of the odour, use of a 2½ per cent. solution of cyllin, kerol, or izal (4ozs. to a gallon of lukewarm water). Cooper's milk oil fluid used in the same strength is another cheap dressing. She may require two or three dressings at intervals of a few days. Apply the dressing with a sponge or swab. Choose a fine, mild day if possible.

"H.G.H., Cowell, has draught stallion affected with grease.

Reply—Do not apply watery lotions, and do not wash the legs. Get the following lotion:—Goulard's extract, 3ozs.; glycerine, ½ pint; methylated spirits, ½ pint. (mix). Apply daily with an old brush, later every second or third day. Give regular exercise. The disease is liable to recur. Examine his legs from time to time and apply lotion as soon as there is any indication of trouble. I would suggest that you put him back on corn ration.

"J.M.McA.," Redhill, reports sheep with footrot.

Reply—Footrot is a contagious inflammation of the feet, and you should not allow neighbors' sheep to be put in paddocks where affected sheep have been. Your sheep will benefit by being moved into dry, hilly country, but you should separate the affected ones from the flock for dressing and treatment. Remove all loose and diseased horn with a sharp knife and dress twice a week with either bluestone solution, 1 part to 20 of water, apply with a swab, or carbolic acid 1 part, glycerine 10 parts. There is a form of foot trouble which may be mistaken for footrot, and which is not uncommon in wet seasons or where there is little wear of the hoofs. This condition, associated with wet pastures, sets up an inflammatory condition of the feet. If the feet are trimmed up with a sharp knife or secateurs, and the sheep are put on dry ground, recovery takes place.

"C.E.W., jun.," Littlehampton, reports (1) Cow with obscure nervous symptoms subsequent to calving followed by blindness of the right eye.

Reply—She was suffering from eclampsia. The condition of the eyes is a sequel to this condition. Do not give her any further medicine, recovery may occur naturally. Keep her under observation.

(2) Jersey bull.

Reply—Phenyle solution is a good dressing for lice, but it should be used in the strength of 2½ per cent. or 4ozs. to the gallon. Two or three dressings are usually necessary at intervals of four or five days.

(3) Heifer calf with diarrhoea.

Reply—Provide her with skim milk with a half a tumbler of lime water. Feed her a little hay, but no grass, until the diarrhœa ceases. If improvement does not take place give her a few doses of chlorodyne, one teaspoonful in a little warm water twice a day. It is not advisable to give laxative medicine except at the beginning of an attack of diarrhœa.

"F.C.C.," Booborowie, has five-year-old mare with a navel rupture about the size of a hen's egg.

Reply—Anything which increases the pressure within the abdomen, such as the presence of a foal, may cause an enlargement of the rupture. There is, however, very little risk in the case of a small rupture of this kind unless she has some difficulty at the time of foaling, which might cause excessive straining (labor pains), such as might arise from false presentation.

"J.H.C.," Cowell, reports horse between three and four years old, with bad teeth and welling of the chest and forelegs.

Reply—Give him Epsom salts 1oz., saltpetre 1 teaspoonful, daily in his drinking water -water him with a bucket. Give him soft food, mashes, and green stuff, and give him he run of a small paddock or yard for exercise.

"K.McI.," Mount Gambier, has young bull bleeding from the penis.

Reply—The bleeding from the penis is probably due to an injury of that organ, though do not think that it would be due to the hairs of the sheath being drawn into the preutial sac. I would suggest that you syringe out the sheath with a solution of chinisol, to 1,000 of lukewarm water. Obtain from the chemist a few powders or tablets conaining 8·75 grains of chinisol, which will be sufficient to make a pint of solution. You vill require a household enema syringe. Fill the sheath with the solution and retain it here for a few minutes by holding the lips of the sheath. Treat daily for a week, and keep im out of service for a fortnight. Try and make an examination of the penis the next ime he serves. If the trouble has not disappeared you may be able to determine the seat f the trouble. I shall be glad if you will report again on the state of the bull. If you re unable to obtain chenisol use permanganate of potash solution.

"R.S.T.," Rockleigh, asks cure for horse which pulls pack.

Reply—The usual method of dealing with such cases is to tie up securely in such a nanner as the horse cannot get free or injure himself. A bran bag folded lengthwise o go round the neck attached to a strong tie rope is usually satisfactory.

"T.G.M.," Waikerie, has aged gelding with white film over near side eye. Eye is not wollen but is giving a watery discharge.

Reply—I advise you to use the following ointment:—Yellow oxide of mercury, half per cent. strength. Roll small pill-like body and insert it between the lids, gently move the lids to assist in distribution over the eye surface. Later on use solution of 1 per cent. ilver nitrate, a few drops into eye daily by means of an eye dropper.

"T.F.," New Hindmarsh, has two young pigs: one very weak in hindquarters; the back passage of the other animal is protruding and its bowels are very loose.

Reply—For the 9 weeks' old case, give one teaspoonful of castor oil; if diarrhoea does not cease give the following twice daily:—Bismuth subnitrate, 10 grains in milk. For the second case, wash the bowel with solution of Condy's crystals. Administer the bismuth as above directed and gently replace the portion of bowel protruding.

"W.H.A.," Saddleworth has aged pony, when not tied up walks around in a circle, always turning to the left.

Reply—From your description it seems likely to be a brain trouble, either from injury or parasitic. In the meantime give the following:—Raw linseed oil ¾ of pint, turpentine 1oz. Give rectal injections of cold water. Do not unduly disturb the animal. Food to be soft and laxative.

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AGRICULTURAL EXPERIMENTS—REPORT FOR THE YEAR 1921-1922.

[By W. J. Spafford, Superintendent of Experimental Work.]

EXPERIMENTS AT HAMMOND.

[Conducted by Mr. T. Griffin.]

Since 1908 Mr. Griffin has conducted wheat-growing experiments at Hammond in conjunction with the Department of Agriculture. These experiments consisted of two series, one dealing with the cultivation of bare fallow and the other the testing of varieties of wheat.

The cultivation plots for the period 1908-1915 inclusive had as their object the testing of the subpacker on the so-called dry farming methods, and for that eight-year period the results showed—(1) That when subpacking is done just before seeding it gives, at Hammond, no increase over land not subpacked. (2) That subpacking the soil at Hammond immediately after ploughing is worth a bushel extra yield over and above that obtained from land not subpacked. (*Journal of Agriculture*, November, 1916.)

As the above-mentioned increase of 1bush. per acre was too costly to produce, the arrangement and treatment of these cultivation plots was altered in 1916, and the scheme then adopted has been continued for the year under review.

Yields from Cultivation Plots.—Hammond, 1916-1921.

The objects of the cultivation plots, as now arranged at Hammond, are as follows :—

(1) Comparing the effects of rolling and subpacking on 6in. ploughing.

(2) Comparing the effects of rolling and subpacking on 3in. ploughing.

(3) Testing land cultivated (not ploughed) at ploughing time, and subsequently worked in the same way as ordinary fallow.

(4) Testing the effect of cultivating land in the early autumn and then ploughing it in May.

To date, these soil treatments have given the yields set out below :—

Yields from Cultivation Plots.—Hammond, 1916-1921.

Soil Treatment.	1916.	1917.	1918.	1919.	1920.	1921.	Means, 1916-1921.
	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.
Ploughed 6in. deep and rolled the same day as ploughed ; harrowed within a day or so ; cultivated or harrowed whenever crust or weeds render necessary	19 49	12 50	7 32	2 28	23 50	21 1	14 35
Ploughed 6in. deep and subpacked the same day as ploughed ; cultivated or harrowed whenever crust or weeds render necessary	20 43	11 54	8 16	2 30	22 46	19 36	14 17
Ploughed 3in. deep and rolled the same day as ploughed ; harrowed within a day or so ; cultivated or harrowed whenever crust or weeds render necessary	18 30	12 56	8 10	2 49	23 35	21 9	14 33
Ploughed 3in. deep and subpacked the same day as ploughed ; cultivated or harrowed whenever crust or weeds render necessary	18 4	11 43	7 58	2 20	22 13	19 22	13 37
Cultivated (not ploughed) at ploughing time ; cutivated or harrowed whenever crust or weeds render necessary	17 14	10 44	9 46	2 11	17 38	17 19	12 29
Cultivated early autumn, ploughed 4in. deep in May ; cultivated or harrowed whenever crust or weeds render necessary	—	13 0	8 23	1 55	20 20	14 54	11 42*
Rainfall	13·42in.	19·47in.	7·97in.	11·28in.	22·93in.	21·13in.	16·03in.

* Five years only.
80lbs. superphosphates per acre on all plots each year.

Results of Cultivation Plots at Hammond.

The returns secured from these cultivation plots show for the given years—1908 to 1921 :

1. On 6in. ploughing, rolling gives about equal returns to those received by subpacking, which over the period of eight years from 1908 to 1915 was shown to be an increase in yield of 1bush. of wheat per acre. (*Journal of Agriculture*, November, 1916.)

2. On 3in. ploughing, rolling gives practically a bushel per acre greater increase than does subpacking the land, and this means that on this depth of ploughing, rolling immediately after ploughing is worth an increase of about 2bush. per acre over and above what is received from land not rolled.

3. As rolling can be done for less than 1s. 6d. per acre, this operation, provided it be done soon after ploughing, is a profitable one.

4. Cultivating instead of ploughing does not give returns of wheat at Hammond equal to those secured by the latter practice.

5. The preparation of a soil mulch, by cultivating the land in early autumn, then ploughing in May, has not, so far, given returns equal to ploughing and packing the land, as is shown by the average yields secured from the above six plots for the five-year period, 1917-1921 :—

Plot 1	13bush. 32lbs. per acre
" 2	13bush. 0lbs. "
" 3	13bush. 44lbs. "
" 4	12bush. 43lbs. "
" 5	11bush. 32lbs. "
" 6	11bush. 42lbs. "

EXPERIMENTS AT BUTLER.

[Conducted by Mr. C. F. Jericho.]

In 1916, wheat-growing experiments were commenced in the hundred of Butler, having as their objects—(1) The discovery of the most profitable dressing of superphosphate to apply to wheat crops in this particular locality; and (2) the comparing of the returns secured from varieties of wheats on bare fallow.

MANURIAL PLOTS AT BUTLER, 1921.

The manurial plots were commenced in 1916, and are permanently pegged, so that each year that the blocks are sown with wheat, each plot will receive exactly the same manuring. This treatment does away with any chance of the plots receiving any benefits from residual fertilisers that they are not entitled to, and the more often the plots are cropped the better will they show the effects of the different dressings of manure.

Below will be found the yields of grain received from the wheat grown in the manurial plots in 1921 :—

Yields of Manurial Plots—Butler, 1921.

Plot.	Manure per Acre.	Bush.	lbs.
1	No manure	13	27
2	½cwt. superphosphate	14	50
3	1cwt. superphosphate	16	37
4	2cwts. superphosphate	19	11
5	3cwts. superphosphate	18	16

Gluyas wheat used in all plots at the rate of 60lbs. seed to the acre.

Yields of Manurial Plots—Butler, 1916-1921.

Year.	Yield per Acre.										Rainfall.
	Plot 1. No Manure.		Plot 2. ½cwt. Super.		Plot 3. 1cwt. Super.		Plot 4. 2cwts. Super.		Plot 5. 3cwts. Super.		
1916	12	12	16	17	16	32	23	32	28	31	15·79
1917	13	30	20	36	23	23	27	48	29	46	20·78
1918	8	8	12	54	14	24	19	53	19	56	9·87
1919	10	14	12	26	15	9	16	42	17	59	10·93
1920	10	42	18	4	23	13	25	29	25	8	14·79
1921	13	27	14	50	16	37	19	11	18	16	—
Means.............	11	22	15	51	18	13	22	6	23	16	—

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The average returns for the application of various quantities of superphosphate very clearly show the need in the hundred of Butler of what are usually considered comparatively heavy dressings of this form of fertiliser. The following table, however, sets this out much more clearly, and distinctly shows that the use of manure for wheat growing is purely a business proposition—so much increased return for a given outlay. In the calculations, superphosphate is taken at 5s. per hundredweight, and wheat valued at 3s. 3d. per bushel: —

Increased Yields and Net Increased Value of Wheat from the Use of Superphosphate—Butler, 1916-1921.

Manuring per Acre.	Yields, 1916-1921.		Increased Yields over no Manure.		Net Value of Increase per Acre.		
	Bush.	lbs.	Bush.	lbs.	£	*s.*	*d.*
No manure	11	22	—		—		
½cwt. superphosphate	15	51	4	29	0	12	1
1cwt. superphosphate	18	13	6	51	0	17	3
2cwts. superphosphate	22	6	10	44	1	4	11
3cwts. superphosphate	23	16	11	54	1	3	3

WHEAT VARIETY TESTS AT BUTLER.

Besides the manurial plots mentioned above, Mr. Jericho is conducting wheat variety tests, each variety being sown on land that was in bare fallow, at 1bush. per acre, with 2cwts. superphosphate. In the table arranged below will be found the yields from the wheat varieties grown at the hundred of Butler for 1917-1921 :—

Yields of Wheat Varieties—Butler, 1917-1921.

Variety.	Yield per Acre.											
	1917.		1918.		1919.		1920.		1921.		Means. 1917-1921.	
	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.
Gluyas	21	24	16	42	14	22	19	1	20	2	18	18
College Eclipse	16	43	14	23	16	36	15	22	19	24	16	30
Queen Fan	18	2	10	38	15	40	11	58	22	21	15	44
Caliph	17	59	12	24	16	31	12	51	18	50	15	43
Canaan	—		—		—		12	30	19	19	—	
Late Gluyas	—		—		—		—		25	30	—	
Rainfall	20·78in.		9·87in.		10·93in.		14·79in.		—		—	

For the four seasons preceding that of 1921, Yandilla King was grown as one of the varieties of wheat under test, but the returns secured were so low in comparison with other kinds, that it was replaced by Late Gluyas. This change certainly seems justified, because from a check plot of Yandilla King sown by Mr. Jericho alongside the other varieties, only 10bush. 48lbs. per acre were harvested, whereas the Late Gluyas yielded 25bush. 30lbs. per acre. Florence wheat was also seeded as a comparison with the experimental plots, and returned grain at the rate of 17bush. 50lbs. per acre.

For the five-year period, 1917 to 1921, Gluyas retains its position as the best yielder of grain, of the varieties tried, and not only has the mean average yield been good, but the individual yearly returns have been high.

EXPERIMENTS AT YEELANNA.

[Conducted by Mr. I. J. Williams.]

In 1918 arrangements were made with Mr. I. J. Williams, of Yeelanna, to have experimental plots carried out on his farm, and it was decided that manurial plots and a rotation of crops experiment should be conducted there. As some of the plots were to be sown on fallow, the land had to be prepared that year, and the first crops were sown in 1919. The experiments arranged consist of:—(1) Manurial plots, testing different forms of phosphatic fertilisers, and (2) rotation of crops.

Manurial Plots at Yeelanna, 1921.

The manurial experiment consists of 10 1-acre plots, five of which are sown to wheat each year, and the remainder are bare fallowed, and the plots are permanently pegged and so worked that each time every individual crop is in crop, it receives the same manuring. The yields of grain received from these plots since their inception—1919 to 1921—are set out below:—

Yields of Manurial Plots.—Yeelanna, 1919-1921.

Plot.	Manuring per Acre.	1919.		1920.		1921.		Means. 1919-21.	
		Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.
1	1cwt. superphosphate	21	27	14	0	26	0	20	29
2	1cwt. basic slag	7	30	11	23	5	2	7	58
3	1cwt. bonedust	1	50	9	59	3	30	5	6
4	1cwt. super., 5cwts. lime	7	40	13	4	14	6	11	37
5	No manure	1	56	7	20	3	30	4	15

The returns secured from these manurial plots certainly show some startling differences, and at present it appears that something other than the kinds of phosphates used on the various plots is having an influence on the results. "Takeall" (*Ophiobolus graminis*) has been much in evidence during each of the three seasons, but this does not explain the difference shown between plot 1 and plot 4. An estimate of the proportion of each crop affected by "Takeall" was made by our Field Officer (Mr. S. B. Opie), and he says of the plots:—"Plot 1 had about 10 per cent. affected by "takeall"; plot 2 about 85 per cent.; plot 3 about 70 per cent.; plot 4 about 8 per cent., but this crop grew very high and lodged badly, and although a false comb was used, much of the crop could not be harvested; plot 5 about 70 per cent. affected by the disease.

ROTATION PLOTS—YEELANNA.

The rotation of crops experiment at Yeelanna is a four-course series with 5-acre plots, in which two cereal crops are the only ones carted off the land, and is as follows:—Oats, rape, bare fallow, wheat. During its course this rotation will work out as is shown below:—

Plot.	1919.	1920.	1921.	1922.
1	Oats	Rape	Fallow	Wheat
2	Rape	Fallow	Wheat	Oats
3	Fallow	Wheat	Oats	Rape
4	Wheat	Oats	Rape	Fallow

Wheat—2cwts. superphosphate per acre.
Oats—1cwt. superphosphate per acre.

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Archer's Chevalier.—A strong-growing variety which stooled well, and produced sufficiently tough stalks to withstand the rough weather experienced without any tendency to lodge. Ripened a few days earlier than did Kinver's Chevalier.

Duckbill.—The variety usually grown in the district, but it did not make growth equal to any of the other varieties. Right up to the time that the caterpillars did their damage this variety did not promise to yield so well as any one of the other kinds being tried.

Plumage.—Was very similar in appearance to Binder, but was a little later in maturing.

Kinver's Chevalier.—Rather later in maturing than the other imported varieties, but made very rapid growth towards the end of the season. This kind did not stand up so well during the rough weather as did Archer's Chevalier.

Binder.—This was the most promising of all the varieties tried, but it was so badly attacked by caterpillars that very little of its grain was left. The grain harvested was a really good sample, and much better than any of the other varieties.

HAY CROP—MILLICENT, 1921.

The part of the block of land—about nine acres—not required for the barley trials was ploughed during December, 1920, was kept cultivated until seeding, and on June 20th 60lbs. Algerian oats and 60lbs. White Tuscan wheat were drilled in with 1cwt. superphosphate per acre. The germination and the growth made were good, and although the hot spell in November led to the "blighting" of some of the wheat, the crop returned 2 tons 11cwts. 44lbs. of hay per acre. Although this yield is quite good, it was not nearly so heavy as was expected, which appeared to be wholly due to the "blighting" of patches of the wheat, as was evidenced by the general lightness of the sheaves of hay.

The work in connection with these plots at Millicent was very ably carried out by Mr. J. Beaton, of that district.

EXPERIMENTS AT SMOKY BAY.

(Conducted by Mr. E. Lovelock).

At the request of the Smoky Bay branch of the Agricultural Bureau a series of manurial experiments with wheat were arranged for that district, to be conducted in conjunction with the Department of Agriculture by Mr. E. Lovelock. The experiments are to be worked on the three-course rotation of (1) bare fallow, (2) wheat (manurial plots), (3) oats, and were arranged for this year as follows, and producing the yields shown :—

Plot.	Manuring per Acre.	Yield per Acre.	
		Bush.	lbs.
1	No manure	6	44
2	½cwt. superphosphate	8	16
3	1cwt. superphosphate	8	45
3A	1cwt. super. and ½cwt. muriate of potash	8	15
4	2cwts. superphosphate	9	49
5	3cwts. superphosphate	11	16

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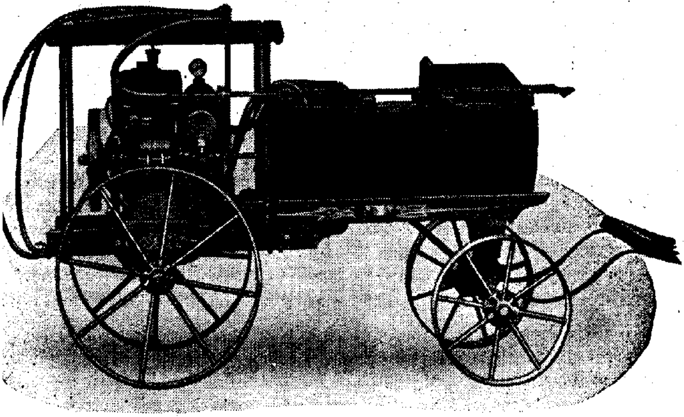

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An investigation of a sample of soil taken at the time of starting these plots showed on analysis :—

Total silica (SiO_2)	8·84 per cent.
Lime (CaO)	45·85 per cent.
Potash (K_2O)	0·019 per cent.
Phosphoric acid (P_2O_5)	0·085 per cent.
Organic carbon (C)	1·54 per cent.
Nitrogen (N)	0·094 per cent.
Manganese (Mn_3O_4)	0·010 per cent.
Chlorides (as sodium chloride)	0·016 per cent.

These results show the soil to be a calcareous sand, very deficient in potash, but compared to average South Australian soils, comparatively rich in phosphoric acid and nitrogen, and so it was decided to alter the treatment accorded to these manurial plots, and in the future they will be dressed as follows :—

Plot 1—1cwt. superphosphate per acre.
Plot 2—½cwt. superphosphate per acre.
Plot 3—½cwt. muriate of potash per acre.
Plot 4—1cwt. super. and ½cwt. muriate of potash per acre.
Plot 5—No manure.
Plot 6—2cwts. superphosphate per acre.
Plot 7—2cwts. super. and 1cwt. muriate of potash per acre.

Oats at Smoky Bay.

Seeing there is no residual effect from manure, the oat crop must of necessity be grown without the addition of fertilisers of any kind, and for this year the crop gave a return of 10bush. 39lbs. per acre.

EXPERIMENTS AT COONALPYN.

[Conducted by Mr. F. Tregenza.]

In 1919 a series of rotation of crops experiments were laid down for the Coonalpyn Branch of the Agricultural Bureau on Mr. Tregenza's farm, and have as their main objects, the control of "takeall," which at present plays havoc in the wheat crops of the district, and increasing the livestock-carrying capacity of the land. For the purpose a five-course rotation was adopted, consisting of five plots each five acres in extent, to be worked on the system of bare fallow-wheat-oats-pasture-pasture. The wheat and the oat crops are being dressed with 1cwt. superphosphate per acre, and the grazing crop consists of a mixture of 10lbs. Wimmera rye grass, 2lbs. Subterranean clover, and 2lbs. rape per acre, sown without manure after the oat stubble has been lightly cultivated. Two crops have been carried by these plots, with the following results :—

Cereal Crops in Coonalpyn Rotation Plots, 1920-1921.

	Yield per Acre.				
	1920.			1921.	
	T.	C.	L.	Bush.	lbs.
Wheat	0	10	30*	20	55
	Bush.	lbs.			
Oats	16	13		23	26

1920 crop of wheat so badly affected with "takeall" that it was cut for hay.

EXPERIMENTS AT WILKAWATT.

[Conducted by Mr. J. H. Tylor.]

For the six years 1914 to 1919 Mr. W. J. Tylor conducted manurial experiments, and from 1915 to 1919 rotation plots, in conjunction with the Department of Agriculture, at Wilkawatt, and after he left his farm Mr. J. H. Tylor continued these experiments, but owing to various causes the results secured in 1920 are of no value.

MANURIAL PLOTS AT WILKAWATT.

The manuring of the various wheat plots was fixed in 1916, and with the xception of potassic fertiliser, which was practically unobtainable during he war period, has continued unchanged since that time, and is as follows :—

Plot 1—½cwt. superphosphate per acre.
Plot 2—1cwt. superphosphate per acre.
Plot 3—2cwts. superphosphate per acre.
Plot 4—1cwt. basic slag per acre.
Plot 5—No manure.
Plot 6—2cwts. basic slag per acre.
Plot 7—2cwts. superphosphate, ½cwt. nitrate of soda per acre (spring).
Plot 8—2cwts. superphosphate, ½cwt. sulphate of potash per acre (seeding).
Pot 9—2cwts. superphosphate, ½cwt. nitrate of soda, ½cwt. sulphate of potash, 5cwts. lime per acre.
Plot 10—5cwts. lime per acre.
Plot 11—5cwts. lime, 2cwts. superphosphate per acre.

The manurial plots have been cropped on the bare fallow-wheat-pasture ystem of rotation, and with the exception of 1916, when Baroota Wonder vheat was used, Gluyas has always occupied these plots, and the various rops have yielded as follows :—

Yields of Manurial Plots—Wilkawatt, 1916-1919, *and* 1921.

Plot.	1916.		1917.		1918.		1919.		Means. 1916-1919.		1921.	
	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush.	lbs.	Bush	lbs.
1	12	49	7	31	5	32	1	52	6	56	17	22
2	13	42	8	47	7	48	2	37	8	13	15	44
3	19	39	11	13	7	46	2	37	10	19	16	18
4	12	32	9	12	6	56	2	40	7	50	12	15
5	12	6	6	40	3	36	1	27	5	57	6	44
6	18	56	9	37	7	38	2	10	9	35	10	40
7	22	17	13	12	10	14	2	37	12	5	15	40
8	21	7	12	16	9	8	1	55	*11	6	‡15	32
9	21	18	16	6	8	17	2	37	†12	4	‡19	38
10	14	49	12	59	6	45	1	29	9	0	8	24
11	18	37	13	2	10	5	2	30	11	3	18	50

* No potash, 1917 and 1919.
† No potash, 1917, 1918, and 1919.
‡ Muriate of potash. 1921.

In reporting on these plots in the *Journal of Agriculture* of February, 1920, t was seen that the figures showing the net value per acre of the increase rom the use of fertiliser at Wilkawatt for the three years under review very learly show—(1) that the application of superphosphate to wheat is profitable;

(2) that an application of 2cwts. superphosphate per acre is much more profitable than are lighter applications; (3) that even if basic slag was down to the same price as it is in Europe, *i.e.*, about two-thirds of the price of standard superphosphate, applications of it would not be so profitable as are applications of superphosphate; (4) that at the present price of lime an application of 5cwts. per acre—equal in cost to 2cwts. of superphosphate—does not give returns approaching those obtained by using superphosphate, and although an increase of 3bush. 3lbs. per acre was secured, it does not pay for the lime; (5) that the highest average yield was secured from the plot receiving 2cwts. superphosphate and ½cwt. nitrate of soda per acre, and although the increase of grain was profitable, the addition of the nitrate of soda did not pay for itself.

The yields for 1921 cannot be included in the mean returns from these plots, owing to the absence of figures for the 1920 crops, but even though there are some slight differences from the mean results, they are not sufficient to alter the findings as set out above.

ROTATION PLOTS.

Besides the above manurial plots, a series of rotation plots were laid down as a five-course system at Wilkawatt in 1915, arranged as follows:—(1) Bare fallow, (2) wheat with lucerne and dressed with 2cwts. superphosphate, (3) lucerne, (4) lucerne, (5) lucerne.

The returns secured from the wheat plots are set out in the following table for each of the years 1915 to 1921, with the mean for the period:—

Yields of Wheat in Rotation Plots—Wilkawatt, 1915-1921.

	Yield per Acre.	
	Bush.	lbs.
1915	10	46
1916	12	8
1917	10	18
1918	4	58
1919	2	14
1920	10	20
1921	22	35
Means, 1915-1921	10	28

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NOTES ON TWO VINE DISEASES WHICH OCCURRED ON THE RIVER MURRAY IN OCTOBER, 1921.

[By T. G. B. Osborn, D.Sc., Professor of Botany in the University of Adelaide, and Geoffrey Samuel, B.Sc., the Laboratory of Plant Pathology, Department of Botany, University of Adelaide.]

In the latter part of October of last year several specimens of vine shoots showing a dying back of the tips were sent in to the Department of Agriculture. The number of specimens received, and the widespread distribution of the diseases, caused one of us (G. S.) to investigage the outbreak on the spot, work being subsequently continued in the Laboratory of Plant Pathology at the University. Investigations have shown that two disease-producing causes were at work, and, though there is at present no reason to expect a recurrence of such trouble this season, it seems worth while placing some of the observations on record. The first of the diseases was due to a fungus, but the second was non-parasitic in origin. Though nothing can be recommended as a treatment for the latter, records of such diseases are valuable when they can be studied in relation to soil and weather conditions, as they help considerably to an understanding of the requirements of the plant affected. A brief account of both diseases is therefore given.

AUREOBASIDIUM VITIS.

Symptoms.

The specimens affected with the fungus disease showed a blackening and death of the tips of the shoots and a decay of irregular patches of the leaves. If such affected leaves were kept in a moist chamber overnight, the discoloration quickly extended over the whole leaf, which finally became black and rather sticky. At the same time minute whitish dots, the size of a small pin's head, became visible on the affected parts. Specimens which came in some weeks later also showed the fungus attacking the young fruit bunches.

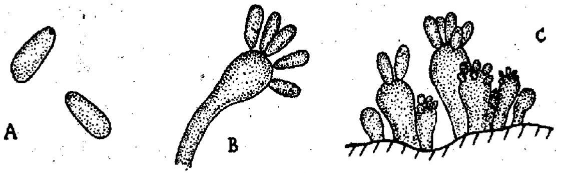

Fig. 1. Mycelium of *Aureobasidium vitis* projecting from surface of leaf and bearing spores. (Magnified nearly 1,000 diameters.)

Cause of the Disease.

Sections through the whitish pustules mentioned above, when examined under the microscope, showed that they consisted of little heaps of spores budded off from the fertile ends of the fungus mycelium that was growing through the tissues of the leaf (Fig. 1). This method of spore formation is characteristic of the fungus *Aureobasidium vitis*.

Aureobasidium vitis was discovered in France in 1882, as a fungus occasionally attacking grapes, especially in muggy weather, but it never caused very serious losses. The species was described as having conidia of a clear yellow color. In 1897 Montemartini described a variety occurring on leaves and fruit stalks, which he named *Aureobasidium vitis*, var. *album*, because the pustules were whitish. Later in that year MacAlpine described a form occurring in Victorian vineyards, chiefly on the berries, as *Aureobasidium vitis*, var. *tuberculatum*, because of the little tubercles which the fungus formed on the fruit. The South Australian specimens, both in the parts affected and in the nature of the spore pustules, agree most closely with Montemartini's description, so that the fungus is provisionally referred to *Aureobasidium vitis*, var. *album*, Montemart.

FIG. 2. Vine leaf, showing small angular pale-green or pale-brown spots characteristic of the second disease.

On the Murray the majority of the vines which were seen affected with this disease were young one and two year old plants with a cover crop of wheat growing between the rows. It is quite possible that the presence of this cover crop helped to keep up the moist conditions necessary for infection by the fungus. The very hot week toward the end of October had checked its spread, however, and the dead patches on affected leaves had dried out, so that in the case of young leaves subsequent growth produced considerable cockling of the leaf surface. In cases where the shoot tip had been killed, numbers of laterals sprang from below, rendering it difficult to secure good canes to form the vines. Only one or two vines which had had very small shoots at the time of infection were seen which appeared to have been killed by the fungus.

Specimens of this disease were received from Lyrup, Watervale, Berri, and Renmark. Such widespread infection by a fungus previously negligible in importance in South Australia, indicates that the weather conditions during October, 1921, were such as to induce a mild epidemic. It is quite probable, however, that this disease will not be in such evidence again for a considerable number of years.

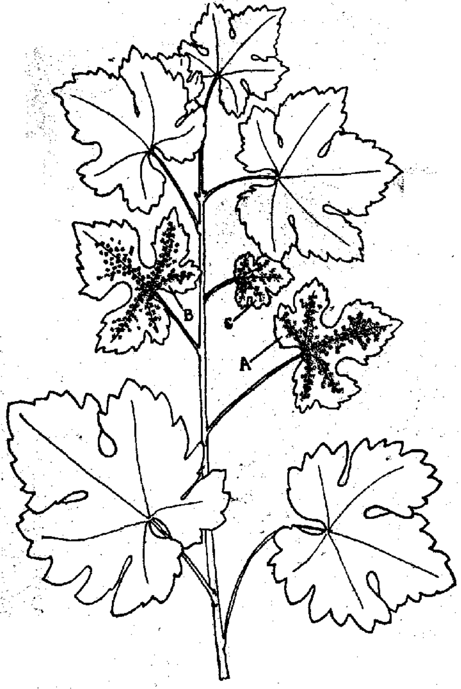

FIG. 3. Vine shoot, showing three leaves affected as in Fig. 2 (A, B, C), with normal leaves above and below. (Shoot picked about three weeks after the first reports of the disease were received. Some healthy leaves have been removed in order to make the drawing clearer.)

PHYSIOLOGICAL DISEASE.

SYMPTOMS.

This disease occurred at various places along the valley of the Murray from Cadell as far up as Berri. There was occasionally blackening and death of the tips of young shoots, but more usually the leaves presented a most characteristic and unusual appearance. Little angular areas limited by the smallest veins became pale-green or pale-brown in color, giving the affected leaf a kind of mosaic appearance when held up to the light (Fig. 2). These pale angular spots were usually, but not always, more numerous near the veins. In every case that was examined, only about three to five leaves on a shoot were thus affected, while the leaves above and below these diseased ones were always quite healthy (Fig. 3). When the vines were seen in the field, some three weeks after the disease was first reported, the amount of this subsequent healthy growth which affected shoots from many vineyards showed indicated that the cause inducing the disease had probably operated everywhere at practically the same time, and had then been completely removed. In cases such as these just described (*i.e.*, in which the tip was not killed), there seems to have often been some considerable check to the growth of the main shoot, for in the field strong laterals were frequently found springing from the base of the injured shoot, and occasionally overtopping it in growth (Fig. 4). This growth of numerous laterals was the most serious aspect of the disease, for in many cases it rendered it difficult to secure a good cane to form the espalier.

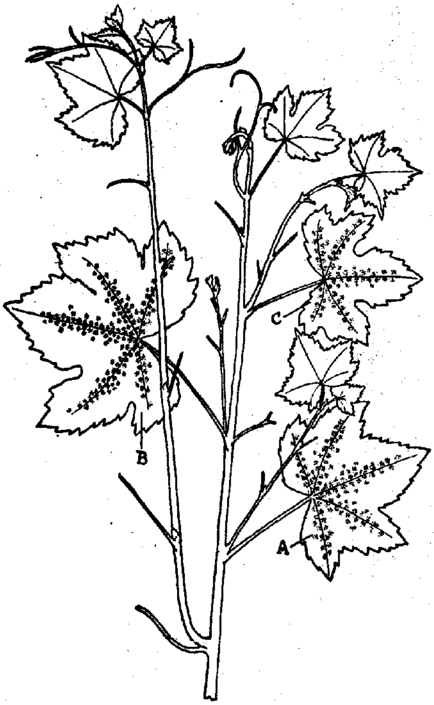

FIG. 4. Vine shoot, showing stimulation to formation of laterals, in addition to the features illustrated in Fig. 3.

CAUSE OF THE DISEASE.

All attempts to isolate from diseased leaves any fungus or bacterial parasite gave only negative results. Neither could the presence of any parasite be detected by microscopic examination of the diseased lesions on shoots or leaves. It therefore seemed probable that the disease was of a "physiological" nature, the result of some unfavorable environmental or atmospheric influence. The pathological changes in the cells of diseased portions of the

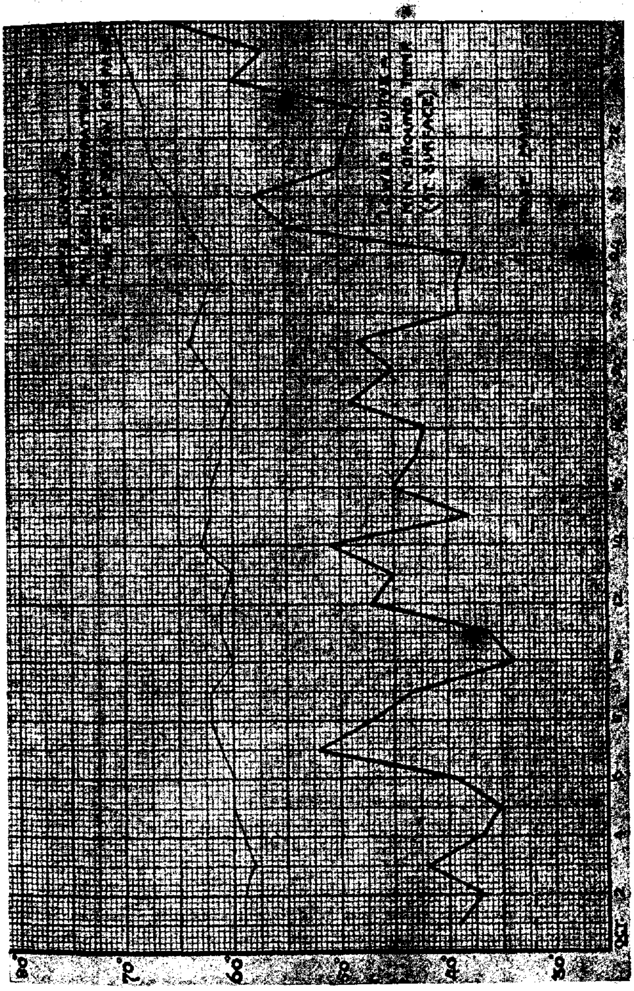

FIG. 5. Graph of temperature records for October from the Government Experimental Orchard, Berri.

plant, consisting of gummosis of the cell walls, rupture of certain cells, and the secretion of oily substances in others, agree in many respects with those described for injury by late frosts.*

Several facts, therefore, pointed to this disease being the result of a mild frost, and consequently an endeavor was made to secure meteorological data from an area where the disease had occurred. The only temperature records which could be obtained were from the Government Experimental Orchard at Berri. The Manager (Mr. C. G. Savage) very kindly sent a copy of the readings for the whole of October, from which the chart in Fig. 5 was constructed. No cases of the disease, however, were found in the Experimental Orchard itself, or in any of the vineyards close to Berri, which lie on fairly high ground. It was noticeable that the vineyards in which the disease did occur were situated on the lower-lying areas, and indeed, in most blocks visited, it was at the lower end of the block that affected vines occurred.

An examination of the termperature records by means of the graph in Fig. 5 shows that on the night of the 10th October the ground temperature fell to within 2 degrees of frost on the relatively high ground at the Experimental Orchard. At the same time the soil temperature 2ft. below the surface maintains, on the whole, the slow, steady rise consequent upon the advent of spring. It seems possible, therefore, that in the lower-lying vineyards where the disease occurred, the temperature may have fallen to the frost mark, while root absorption continued to be fairly active owing to the comparatively warm soil. These conditions may possibly have led to the bursting of some of the cells in the young growing tips of the vines, and consequently to those other pathological changes noted above. Assuming this injury had been produced in the delicate growing bud, it would not beuntil somee growth had occurred and until those bud leaves had expanded that the injury would be easily noticed. It was, in fact, on the 24th October, just a fortnight later, that the first reports of the disease were received. Severe frost injury produces, as is well known, death of whole shoots, but in this case the conditions seem to have been only just sufficient to injure the most delicate cells of the growing point.

Unfortunately the hypothesis just given as to the cause of the disease cannot, in the nature of things, be verified by experiment. Our knowledge of plants is at present not sufficient to determine with certainty what agencies could produce the symptoms exhibited in the diseased plants. But it is by the recording of such instances that eventually sufficient data may be obtained to lead to a solution of these problems.

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* Sorauer, Pflanzenkrankheiten, Bd.I., Nicht parasitaren krankheiten, p. 615 (1909).

ORCHARD NOTES FOR SOUTHERN DISTRICTS.

[By C. H. BEAUMONT, Orchard Instructor.]

The weather this month will control the growth of fungus pests, and it is well for orchardists to be in readiness. It is much easier to prevent the growth of the pests than it is to rectify the damage done. If the trees have been well sprayed with Bordeaux mixture there is not much to fear, except in damp or shaded parts of the orchard. If there is any doubt, it is advisable to spray again with Bordeaux, using an excess of lime, or to try lime sulphur solution, 1½galls. in 100galls. of water. Lime sulphur solution is to be used if red spider is noticed; it is also effective for thrip, and is the best remedy known for oidium of the vine. Mildew may be found on some apple trees, though it is very rare here; the lime sulphur is a check.

Woolly aphis will need constant watching, also the peach and orange aphis; the best treatment for these pests has been explained in previous issues. Spraying for the destruction of codlin moth will commence this month; there is nothing better than arsenate of lead, and that made locally is as good as any. The first spraying is the most important and should be given just after the fall of the flowers. A good spray outfit is necessary for good work. One pound of arsenate of lead powder in 30galls. of water is the usual strength, but many orchardists use 1lb. in 20galls. and claim better results. Spray again in about 10 to 12 days. For cut worms, or caterpillars, use 1lb. of arsenate of lead powder in 8galls. of water. Borers in almond, apricot, and apple trees may be checked by plugging the hole made with a small piece of cotton wool soaked in petrol and sealing it with clay.

Downy Mildew.—Vignerons will do well to be ready for their first spraying. If they decide to do the work they should do it properly. It is very easy to blame the mixture used if results are not good, whereas the fault is with the manner in which the mixture was made and applied. Fresh mixed Bordeaux, with an excess of lime, sprayed thoroughly, will hold the fungus in check.

Work the soil well with the cultivator and keep it fine and loose.

Strawberry beds should be loose and mulched. Use flowers of sulphur or lime sulphur solution if mildew is noticed.

ORCHARD NOTES FROM THE NORTHERN DISTRICT.

[By J. B. HARRIS, Orchard Instructor and Inspector.]

A phenomenon which has attracted the attention of various orchardists in the Northern District during the past month, and which may be of interest to others, is the failure of apricot buds to develop as they were expected to do. This has been mainly due to two causes, the first of which is fairly commonly known in the wetter districts as "Black bud"; the second cause is the dropping of the buds.

The name "Black bud" describes the condition as the grower sees it, that is, the bud has a dark and somewhat shining appearance, such as would be the case if it were varnished. This state is apparent almost as soon as the bud begins to swell, and before the color of the inner tissues may be seen, and is caused by an exudation of the gum frequently found on stone fruit trees and known as *Cerasin*. The gum is produced by the breaking down of the plant tissues, which may be caused by various means, such as mechanical injury or the attacks of parasitic fungi. Affected buds examined under the microscope show that sufficient breaking down of the tissues has taken place to cause the bud scales to be stuck securely in gum, and nearer the heart of the bud gum pockets are formed in the embryo leaves. The outer portions of the buds examined were also penetrated by the mycelium of a fungus which was doubtless one of those fungi known to cause " Shot hole " and " Scab," the tree from which the buds were taken having been badly affected with the disease. Thus we have black bud resulting from gumming, and gumming in many cases is due to a shot hole fungus such as *Clasterosporium carpophilum.* The remedy, of course, lies in destroying the shot hole fungus or other cause of gumming. The fungi causing shot hole may be controlled by the application of Bordeaux or Burgundy mixtures in autumn and spring.

In the case of bud dropping, the buds advance rather further than in the previous case, that is to say the bud scales have become quite loose and in some cases the leaves or blossoms may be just apparent, and then the buds cease to grow, and if a twig or shoot is gently shaken the buds fall out. Certain buds which were less advanced continue to grow satisfactorily. Many reasons have been suggested as the cause of this, such as too strong a spray, lack of vigor as a result of waterlogging, and frost. In the instance under discussion trees started into growth early, and when the buds had reached the stage mentioned two successive severe frosts were experienced.

Of the stone fruits commonly grown, apricots and peaches are the most subject to injury by frost. When planting an orchard it is well to bear in mind that sloping land is less subject to frost than low-lying land on account of hot air rising, provided the slope is not unduly exposed to cold winds.

IMPORTS AND EXPORTS OF FRUITS, PLANTS, ETC.

During the month of August, 1922, 770bush. of apples, 7,475bush. of bananas, 291bush. of pineapples, 130bush. of passion fruit, 1bush. of paw paws, 537 bags of onions, 26,540 bags of potatoes, 6 packages of peanuts, 17 packages of bulbs, 45 packages of plants, 60 packages of seeds, 71 packages of trees, and 2,858 empty wine casks were examined and admitted at Adelaide and Port Adelaide under the Vine, Fruit, and Vegetable Protection Acts, 1885 and 1910. Of these, 58 packages of trees, 14 packages of plants, and 294 wine casks were fumigated, and 1bush. of paw paws (no fruit fly certificate) was destroyed.

Under the Federal Commerce Act, 7,019 packages of citrus fruit, 224 packages of fresh fruit, 5,406 packages of dried fruit, 5 packages of preserved fruit, 3 packages of jam, 2 packages of honey, and 2 packages of plants. These were consigned as follows:—To London—3,878 packages of dried fruit, 5,519 packages of citrus fruit; to New Zealand—1,498 packages of citrus fruit, 845 packages of dried fruit; to South Africa—595 packages of dried fruit, 1 package of plants; to India and East—2 packages of honey, 3 packages of sauce, 2 packages of preserved fruit, 1 package of plants, 88 packages of dried fruit, 224 packages of apples, 2 packages of oranges, and 3 packages of jam.

Under the Federal Quarantine Act, 4,566 packages of seeds, &c., were examined and admitted from oversea sources. Of these, 15lbs. of beans and 1 package of peas (60lbs.) were destroyed.

VINTAGE, 1922.

The Government Statist reports that the total quantity of wine made this season was 6,370,310 (7,893,345) gallons, a decrease of 1,523,035galls., or 19 per cent. on the record vintage of the previous season.

The value of the wine made is estimated at £664,413 (£993,232). There were 77 winemakers—60 making 1,000galls. and over.

The following are the principal wine districts and the quantities made in each :—Nuriootpa, Barossa, Angaston, Tanunda, &c., 1,954,000 (2,781,000) gallons; McLaren Vale, Reynella, &c., 1,643,000 (2,096,000) gallons; River Murray, 1,028,000 (917,000) gallons; Burnside, Magill, &c., 702,000 (901,000) gallons; Clare, Watervale, &c., 198,000 (405,000) gallons.

Of the total vintage, 2,596,885galls. of wine were made for distillation purposes—brandy and fortifying spirits of wine.

Approximately 40,729 (50,035) tons of grapes were used, yielding an average of 15,641 (15,776) gallons of wine per ton.

On June 30th last, or thereabouts, the stocks of wine, including the recent vintage, totalled 7,677,989 (9,199,695) gallons, a decrease of 1,521,706galls., or 16·54 per cent. on the previous year.

EXPORTS.

The special collection of details of wine exported to the other States is not yet finalised, but on present advices 1,862,000galls., valued at £580,000, is a safe estimate. The exports to oversea countries totalled 427,799galls. valued at £92,430, a total trade of 2,290,000galls. valued at £672,000 (subject to revision) against 2,602,854galls. (£748,298) the previous year.

SUMMARY FIVE YEARS.

Vintages.	Grapes Used.	Wine Made.		Estimated Value.	Stocks.
		Total.	Average Ton.		
	Tons.	Galls.	Galls.	£	Galls.
1918	32,804	5,331,166	163	516,999	6,642,330
1919	40,507	6,544,125	162	694,319	7,789,790
1920	32,566	5,085,939	156	643,738	7,101,788
1921	50,035	7,893,345	158	993,232	9,199,695
1922	40,729	6,370,310	156	664,413	7,677,989
Mean last 5 years	39,328	6,244,977	159	702,540	7,682,318

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

THIRTY-THIRD ANNUAL CONGRESS.

The thirty-third Annual Congress of the Agricultural Bureau of South Australia was held in the Victoria Hall, Gawler Place, Adelaide, on Monday, Tuesday, and Wednesday, September 11th, 12th, and 13th. During the opening and following sessions the following officers of the Department of Agriculture and members of the Advisory Board attended:—The Minister of Agriculture (Hon. T. Pascoe, M.L.C.), the Chairman of the Advisory Board (Mr. W. S. Kelly), the Director of Agriculture (Professor Arthur J. Perkins), the Principal of the Roseworthy Agricultural College (Mr. W. J. Colebatch, B.Sc. (Agric.), M.R.C.V.S.), the Secretary to the Minister of Agriculture (Mr. W. Summers), the Dairy Expert (Mr. P. H. Suter), the Assistant Dairy Expert (Mr. H. J. Apps), the Horticultural Instructor (Mr. Geo. Quinn), the Superintendent of Experimental Works (Mr. W. J. Spafford), the Instructor for Mallee Lands (Mr. C. P. Hodge), the Manager of the Berri Experimental Orchard (Mr. C. G. Savage), Mr. R. Fowler (Manager Blackwood Orchard), the Government Entomologist (Mr. A. M. Lea), Captain S. A. White, Col. Rowell, and Messrs. T. H. Williams, F. Coleman, A. M. Dawkins, H. Wicks (members of the Advisory Board of Agriculture), and the Secretary (Mr. H. J. Finnis). The following delegates also represented the undermentioned Branches:—Alawoona—W. Blatchford, J. Paterick; Aldinga—E. Fidge, E. Martin; Amyton—F. Bunfield, T. Ward; Arthurton—S. Willing, T. Howlett; Ashbourne—H. Meyer, D. Whittham; Balaklava—H. Roberts, R. Goldney; Balhannah—H. Pitt, A. Peacock; Barmera—A. Mutton, D. Brooke; Beetaloo Valley—J. McIntosh, F. Bartrum; Belalie North—H. Warner, W. Cummings; Berri—E. Moritz, W. Lewis; Blackheath—R. Talbot, N. Pym; Black Springs—C. Hudd, K. Dunn; Blackwood—W. Turner, F. Smith; Block E.—T. Spurling, W. Edmonds; Blyth—J. Drennan, J. Pratt; Booleroo Centre—J. Carey, H. Michael; Borrika—H. Green. J. Waters; Brentwood—J. Boundy, W. Le Poidevin; Brinkley—S. Marshall, G. Humphrey; Bundaleer Springs—M. O'Dea, P. Kerin; Bute—W. Sharman, L. Simon; Butler—D. Butler, N. Stewart; Cadell—A. A. Tonkin, R. Frankel; Carrow—T. Burt, R. Kemp; Cherry Gardens—H. and K. Jacobs; Clare—W. Pattullo, R. Knappstein; Clarendon—D. Spencer, T. Brooks; Cleve—L. Cowley, S. Quinnell; Collie—J. Lynch, H. Shippard; Coomandook—R. Upton, M. Wilkin; Coonalpyn—G. Wall, J. Cronin; Cygnet River—J. Osterstock. F. Wakelin; Edillilie—A. Palm, F. Carter; Elbow Hill—J. Williams, H. Wheeler; Eurelia—S. Manning, J. Cummings; Frances—J. Brown, L. Krahnert; Gawler River—W. Patching, T. Rice; Georgetown—M. McAuley, W. Haynes; Geranium—I. and W. Hughes; Gladstone—G. Black, E. Hollitt; Glencoe—T. Gratwick, G. Fergusson; Glossop—J. Hamlyn, C. Cornish; Goode—P. Morcombe, S. Folland; Green Patch—E. Chapman, E. H. Schwerdt; Gumeracha—W. Bond, B. Cornish; Halidon—J. Braithwaite, L. Seymour; Hartley—J. Hudd, H. Hooper; Hawker—J. Smith, E. Pumpa; Hookina—S. Stone, A. Henschke; Inman Valley—H. Lush, W. Roads; Kalangadoo—G. Bennett, D. McCorquindale; Kangarilla—G. Connor, C. Chesson; Keith—A. Densley, A. Shannon; Ki Ki—L. Angus, T. Cooley; Kilkerran—A.

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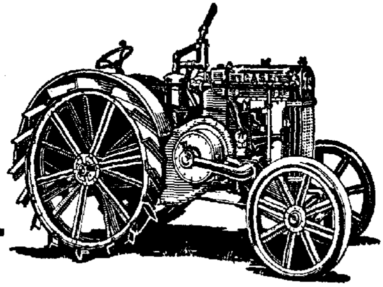

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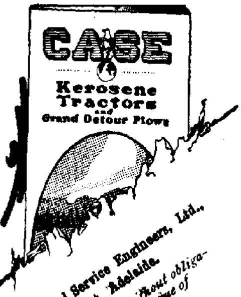
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Sawade, A. Cogan; Kingston-on-Murray—L. and L. Wetherill; Kongorong —C. Atkin, W. Bannister; Koonibba—Rev. W. Juers; Koppio—T. Brennand, G. Gardener; Kybybolite—A .Bradley, S. Shepherd; Lake Wangary—T. Morgan, A. Hawke; Lameroo—P. James, E. Davidson; Laura—W. Pledge, J. Bowker; Lone Gum and Monash—J. Brown, H. Maddern; Lone Pine—A. Lehmann; T. Fromm; Loxton—T. Thiele, A. Traeger; Lucindale—P. Burke, P. Dow; Lyndoch—H. Kennedy, J. Hamatt; McLachlan—E. Klopper, W. Hayman; Maitland—W. Kelly, G. Pearce; Mallala—J. Arnold, J. Catt; Maltee—L. Martin, E. Edson; Meadows—G. Ellis, H. Michelmore; Milang—B. Blackwell, W. Perry; Millicent—W. Downs, H. Hutchesson; Miltalie—W. Deer, T. McEachen; Minnipa—J. Head, G. Williams; Wirrilla—D. Garrett, E. Blatchford; Monarto South—F. Liebelt, H. Rayson; Moonta—A. Ferguson, T. Cliff; Moorak—J. Nicholls, J. Boardman; Moorlands—W. Marshman. L. Spur; Moorook—E. Liddicott, F. Paterson; Morchard—J. Scriven, H. Toop; Morphett Vale—A. Anderson, A. Furniss; Mount Barker—E. Stevens, F. Pope; Mount Bryan—J. Bryce, H. Wardle; Mount Bryan East—J. Thomas; Mount Gambier—W. Manser, D. Collins; Mount Hope—J. Winstanley, T. Speed; Mount Pleasant—V. Tapscott, W. Vigar; Mount Remarkable—W. Oldland, E. Murray; Mundalla—J. Staude, A. Packer; Murray Bridge A. Wells, J. Commyns; Mypolonga—P. Pickering, J. Kavanagh; Nantawarra—A. Herbert, R. Nicholls; Naracoorte—C. Bray, J. Corner; Narridy—W. Johncock, J. Darley; Narrung— T. Barker, W. Short; Netherton—W. Krueger, A. Lower; North Booborowie—F. Clark, E. Dawson; Nunkeri and Yurgo—H. Kelly, A. McKenzie; Orroroo—W. Zanker; Owen—W. Marshman, R. Harkness; Parilla—G. Gregory, R. C. Foale; Parilla Well—A. Davis; Parrakie—H. Deiner, O. Heinzel; Paruna —A. Paget, G. Flavel; Paskeville—L. Young, J. Prouse; Pata—L. Best, W. Westbrook; Penola—E. Heinze, T. Marcus; Petina—A. Daniels; Pinnaroo—R. McKenzie, H. Fewings; Pompoota—N. Forrester, W. Wheeler; Port Broughton—J. Vanstone, R. Goodridge; Port Elliot—W. Hargreaves, H. Smith; Port Germein—B. Stone, A. Trestrail; Pygery—E. Edmonds, W. Heath; Ramco—W. Hunter, O. Rogers; Rapid Bay—B. Williss, G. Cant; Redhill—S. Pengilly, M. Coffey; Rendelsham—E. Stewart, W. Foster; Renmark—H S. Taylor, L. Darrington; Riverton—J. Schultz, E. Gray, Riverton (Women's)—Mesdames Thomas and Longbottom; Roberts and Verran—F. Masters; Rockwood—J. Steed, A. Dunn; Rosedale—S. Gursanky, H. Falting; Saddleworth—H. Hastings, F. Coleman; Saddleworth (Women's)—Mesdames Coleman and Melville; Salisbury—J. Weatherill, A. Urlwin; Salt Creek—G. Barber, H. Hornhardt; Sandalwood—J. Matthiesson, F. Page; Smoky Bay—L. Barlow, H. Tremaine; Shoal Bay—G. Barrett, H. Noske; Stockport—R. Whitelaw, K. Murray; Streaky Bay—J. Williams; Strathalbyn—S. Bottrill, W. Cuming; Talia—W. McBeath, F. Wheaton; Tantanoola—W. Haines, E. Altschwager; Taplan—W. Hammond, F. Barton; Tarcowie—W. Thomas; Tarlee—R. Fuller, A. Hill; Tatiara—J. Bond, E. Fisher; Two Wells—S. Wasley, H. Kenner; Virginia—W. Lang, W. King; Waikerie—A. Burnett, A. Legerwood; Wanbi—E. Paterson, W. Arney; Warcowie—T. Ryan, N. Crossman: Watervale—R. Newland, G. Holder; Weavers—J. Latty, H. Cornish: Whyte-Yarcowie—T. Keatley, R. Philbey; Wilkawatt—H. Phillips, P. Koch; Williamstown—L. Hammatt, G. Brown; Williamstown (Women's) —Mesdames Cundy and Hammatt; Wilmington—H. Duhring, J. Zimmerman; Windsor—H. Clark, E. Jenkins; Winkie—H. Dalziel, F. Bond Wirrabara—W. Sizer, E. Stevens; Wirrega—F. Meier, H. Rogers; Wudinna —J. Butterfield, A. Barnes; Wynarka—J. Beck, T. Ninnes; Yacka—A. Goss, C. Rundle; Yadnarie—J. E. Quick, A. Jericho; Yeelanna—L. Smith, H. Glover; Younghusband—G. Mann; Yallunda—A. R. Cabot; Willowie—F. Bull, A. McCallum; Marama—A. Greig, F. Richards.

Monday Evening.

The Chairman of the Advisory Board (Mr. W. S. Kelly) who presided over the gathering, said at the unanimous request of the Board, a deputation waited on the Minister of Agriculture Hon. T. Pascoe) and asked him to act in the future as chairman of the Board. His acceptance of such a position, it was felt, would bring him into closer touch with the bureau system, which would be advantageous to all. He was pleased to be able to announce that Mr. Pascoe had accepted the position. It was a distinct forward move, which would be to the advantage of the agricultural system throughout the State. The Minister of Agriculture said he had certain doubts whether he should accept the position. Mr. Kelly had served on the board for years, and just as he had reached the top of the tree he was to be deposed. There might, however, be some advantages in the change. Bare resolutions came from the Board to the Minister, and he had no opportunity of knowing what was in the minds of members. He had accepted the position only on condition that Mr. Kelly would consent to be vice-chairman. The new system would be tried for a year, and they would then be in a position to know whether it was advantageous or not.

THE MINISTER'S ADDRESS.

The Minister of Agriculture (Hon. T. Pascoe, M.L.C.), in the course of his address, praised the bureau system. The principle of striking off the names of those who did not take an active part in bureau work was a good one. He was pleased to see ladies present. There were a number of ladies' branches of the bureau throughout the State. The women could do a lot in the direction of assisting their husbands, not only on the farm, but also by discussing problems which arose. Farmers owed much of their success to the fine work of the women. (Applause). During the last 10 years, despite the weeding out process, the membership of bureaus had increased from 2,840 to 6,200, which showed the hold the system had on the farmers. (Applause). He did not think the district conferences were one whit less important than the Annual Central Congress. Since he last addressed them he had severed his connection with farming—he did not even have a mortgage. (Laughter). However, he had not lost his interest in agriculture. The annual conferences embraced every branch of primary industries in the State. Not only agriculture, but stock-raising, &c., played an important part in the life of the agriculturist nowadays. By means of a weekly newsletter bureau doings were broadcasted throughout the State. The herd-testing system was making slow, but sure progress. A new society would be formed next year at Laura, making three in the State. Attempts to develop the fertile South-East—which was a most disappointing area, generally speaking—had not been so successful as could be desired. Experiments at the Kybybolite Farm had, however, been successful.

IMPROVING STOCK.

The Dairy Cattle Improvement Act passed last session was working satisfactorily. It was felt that unless something was done to improve the yield per cow dairying would soon come to a standstill. The cows were fast becoming so defective that the whole industry was menaced. Last year there were, it was supposed, only about 3,000 bulls in the State, but since the Act was passed 6,000 bulls had been registered. It was hoped that 12 months hence, when the first sale of purebred bulls would take place, there would be a number of splendid animals ready for disposal. All the proceeds from registration fees would be distributed in the shape of bonuses, &c., among the farmers. The Turretfield Demonstration Farm, which was under the capable management of Mr. Waddy, was doing well, and during the first nine months had shown a good profit. They could congratulate Mr. Waddy on the result of the first nine months' work. Lack of suitable farm labor had been a serious matter for farmers. The boy farm immigrant system introduced by the Government was working satisfactorily. The Director reported that about 95 per cent. of the boys were turning out satisfactorily, as also were 95 of the farmers who had engaged them. (Laughter and applause). He appealed to farmers to treat the boys kindly, and take them into their families. At the suggestion of Mr. Apps the Government had imported Wiltshire bacon to demonstrate the class of bacon that was acceptable to consumers in Great Britain. The bacon would be on view at the Show. They must look to Great Britain as a market, and therefore must study what she required. In conjunction with the Federal Government the Government were taking steps to find an outlet for the rapidly increasing output of fruit, and trade emissaries were being sent to Great Britain and other countries. Once the people realised the quality of the fruit Australia could produce there would be no difficulty in disposing of it in the old country. (Applause.) The meat trade position was to some extent veiled in obscurity, but the cloud was lifting, and he hoped the lamb export trade would again assume its former proportions. Whereas, in 1908, 272,000 carcases of lamb were exported, this year not more than 50,000 would be sent away. It was quite evident that the farmers were not breeding lambs of the quality raised in the past, as an adjunct to wheat-growing. He hoped they would have a pleasant and instructive time, and that the success of the industry would be the success of everyone as individuals. He declared the Congress open. (Applause.)

THE CHAIRMAN'S ADDRESS.

Mr. W. S. Kelly (Chairman of the Advisory Board of Agriculture) referred to the rapid changes in the agricultural industry, making all the time for advancement, which had occurred during the past few years. Progress was dependent on experiment and propaganda. He paid a tribute to the work of the Department of Agriculture and its high standard of efficiency, and said the operations at the Roseworthy College were of incalculable benefit to farmers generally. Rotation crops would be profitably sown, he believed, in days to come. Experiment was necessary in that and other directions. Propaganda was necessary also. The room for improvement in what were accepted as the general principles of agriculture appealed to him particularly. There was ample scope for new avenues of activity in agriculture. If they could grow good crops farmers could keep solvent and pay their taxes. More might with advantage be done in the direction of district competitions. Provided they could get good district crop competitions, they would be justified in seeking Government assistance. Farmers must be prepared to keep up with the times. There must be more managerial work and less menial slogging on the farms. Many men were battling, but it would pay them better to secure more help. Everything should be done to keep farm laborers on the land, and the Government might assist by building them cottages to accommodate them when they got married. All possible steps should be taken to keep laborers on the farm, and not allow them to drift back to the cities. (Applause.)

RIVER MURRAY HERD TESTING ASSOCIATION.

RESULTS OF BUTTERFAT TESTS FOR JUNE, 1922.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during June.	Per Cow during June.	Per Cow October to June.	Per Herd during June.	Per Cow during June.	Per Cow October to June.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1/A	13	10·07	6,310	485·38	5,189·62	296·71	22·82	238·56
1/C	29·27	23·13	22,603·5	772·24	6,268·01	856·72	29·27	256·88
1/E	17	15	9,330	548·82	4,864·35	419·54	24·68	216·07
1/G	49·40	40·07	35,235·5	713·27	7,417·33	1,282·79	25·97	285·84
1/I	12·13	8·87	5,604	461·99	5,716·87	243·93	20·11	244·24
1/J	16	13·27	6,873	429·56	4,925·22	333·77	20·86	229·78
1/K	13·47	10	7,640	567·19	5,313·78	340·02	25·24	237·02
1/L	16	13·50	8,610	538·13	4,413·84	426·54	26·66	213 51
1/M	17	14·77	7,145	420·29	4,275·96	317·63	18·66	199·51
1/O	36·80	26·77	18,265·5	496·34	4,377·84	882·15	23·97	205·56
1/R	21·23	15·87	7,630	359·40	3,280·31	394·89	18·60	166·07
1/S	13	8	5,700	438·46	4,247·53	253·16	19·47	187·27
1/T	14	12	6,075	433·93	4,341·54	315·60	22·54	217·78
1/U	11·70	11·70	8,763	748·98	6,000·77	387·69	33·14	272·61
1/V	16	16	7,560	472·50	4,377·22	348·23	21·76	199·03
Means	19·73	15·93	10,889·63	551·84	5,245·65	473·29	23·98	229·77

COWS YIELDING 1,000GALLS. OF MILK OR 400LBS. BUTTERFAT.

Name of Cow.	Owner.	No. of Days.	Milk.	Butter-fat.
			Lbs.	Lbs.
Yankee	C. J. Morris, Monteith	319	972·75	474·19
Maggie Revel of Riverdale	J. A. Halliday, Murray Bridge	319	1,120·15	437·50
Donald's Maid of Riverdale	J. A. Halliday, Murray Bridge	280	1,434·05	574·84

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

CONFERENCE OF SOUTHERN BRANCHES.

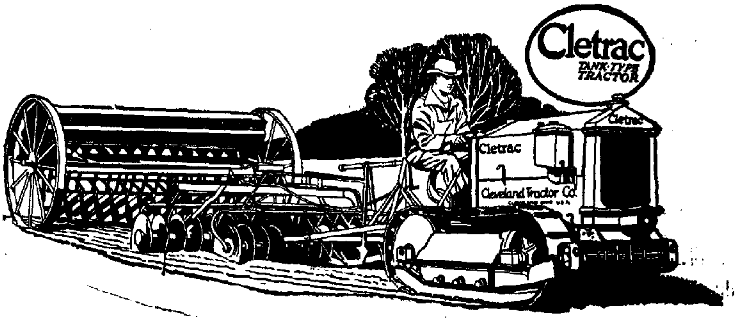
The Fourth Annual Conference of Branches of the Agricultural Bureau situated in the Southern Districts of the State was held at Milang on Tuesday, August 29th. The Department of Agriculture was represented by the following officers :—The Director of Agriculture (Professor Arthur J. Perkins), the Chief Inspector of Stock (Mr. T. H. Williams), the Government Dairy Expert (Mr. P. H. Suter), Orchard Instructor and Inspector for Southern Districts (Mr. C. H. Beaumont), and the Secretary of the Advisory Board (Mr. H. J. Finnis). There was an excellent attendance of members from the Milang, Strathalbyn, Hartley, Rockwood, Port Elliot, Narrung, and Ashbourne Branches. The Chairman of the local Branch (Mr. E. L. Williams) in a short address extended a cordial welcome to the departmental officers and visiting delegates. The Director of Agriculture (Professor A. J. Perkins) who in the absence of the Minister of Agriculture (Hon. T. Pascoe, M.L.C.) was called upon to open the Conference, congratulated the farmers on the excellent prospects that were in evidence for a good season. From the variety of subjects set out in the agenda, the Director said it could be taken that those districts served by the Conference were more or less interested in mixed farming practices, and at the risk of wearying, perhaps, a portion of the gathering, he intended to say a few words about one aspect of mixed farming, which, he felt, had been neglected in the Southern districts, and one that had, in fact, been neglected throughout the whole of the State. He referred to the pig-raising industry. He again brought this matter forward because he wished to draw their attention to an exhibit of pork which was to be staged at the Royal Show, and which he hoped they would all visit and examine. Great Britain did an enormous import trade in pig products. The second and third year after the war she imported pig products to the value of from £70,000,000 to £80,000,000, whilst prior to the war the imports of pig products were worth about £26,000,000 to United States of America, Canada, and Holland, the three chief countries from which she obtained her supplies. The imported pig products chiefly took the form of cured pork or green bacon. It was smoked on arrival in England, and prepared for the markets. Naturally, if the people in Australia wished to adapt themselves to the requirements of Great Britain, they should endeavor to produce the article that was required for the overseas market. It had often been stated that the type of bacon that was produced in South Australia was unsuitable for the English market. The department had induced the Government to import some sides of green bacon, such as were regularly imported into Great Britain from the United States of America and other countries. The sides would be exhibited at the Royal Show, with the idea of showing the producers of South Australia what was required by the English market. The Director stated that he almost despaired of anything being done in the pig-raising industry, the main difficulty being that South Australia had no export trade for pig products. If they were interested he hoped they would use their influence to improve the position. To obtain the export trade they would have to fight trade rivals, and that would mean funds which would have to be found for the purpose. Another point that the

Director thought might interest the Conference was that of the irrigation of crops with underground supplies of water. Many portions of the Southern district had supplies of underground water at a reasonable distance from the surface, and much could be made of it if it was handled properly. Under somewhat the same conditions the department were doing something similar at the Government Experimental Farm at Kybybolite. There were various uses, from the point of view of farming, to which the water could be put. The first point that would appeal to them would be its usefulness from the point of view of dairying. The Director then referred to the growing of maize for corn, and said that remarkable yields could be obtained. In Queensland, crops yielding from 18bush. to 20bush. to the acre were obtained, whilst in Victoria, on suitable land and without irrigation, the yields were 40bush. to 50bush. to the acre. For the first time last year maize for corn was tested at the Kybybolite Farm, and yields of over 60bush. to the acre were received; and he had no doubt that that would be increased when they became more accustomed to that type of crop. Prior to the war the price for maize was almost invariably higher than that for wheat. In other countries the corn also formed a valuable form of foodstuff for livestock, and if the crop was taken on to any extent in South Australia, it would ultimately be used as a stock food mainly for pigs. Mr. J. Steed, of the Rockwood Branch, then contributed a paper dealing with the subject "Co-operation." The Chief Inspector of Stock (Mr. T. H. Williams), in the course of a short address, stated that during last year in many portions of the Southern districts, the Stock and Brands Department had had to deal with outbreaks of disease in livestock. It was to the advantage of owners to keep the pigs clean. Lice conveyed a disease known as impetigo, which was very disastrous to young pigs. In too many cases the pigs were kept under dirty conditions, and in old sties that had been in use for generations. Once tuberculosis got into the piggery, the only remedy was to erect new sties on fresh land. The pigs should be kept under humane and healthy conditions. Contagious pneumonia was a disease that could be easily detected. If one observed the pigs coughing, particularly on a cold morning, or if the animals were dull and sluggish, they should be isolated immediately and the Stock and Brands Department notified. The Inspector spoke very strongly against the pig wallow. The sties should be built either of stone or of concrete, with brick or cement floors. To keep the sties clean Mr. Williams suggested the use of movable wooden battens placed on the floors and covered with straw. As a means of controlling pig lice, the application of the following preparation was suggested:—5lbs. of mutton fat rendered down and mixed to the constituency of a thick paste with 1pt. of kerosine and ½lb. of sulphur. The paste should then be applied with a brush. Dipping was so much waste of time and material. After an excellent luncheon that was provided by the Milang Ladies' Vigilance Guild, the afternoon session was opened with a paper, "Stock-raising on the Farm," by Mr. J. M. Yelland, of the Milang Branch, and a keen and interesting discussion followed. Mr. W. Hargreaves, of the Port Elliot Branch, then introduced the subject "Selling Fat Cattle by Live Weight" for discussion by reading a short paper. After an interesting discussion the Conference resolved, on the motion of Mr. J. Steed (Rockwood), seconded by Mr. A. D. Mathieson (Milang), "That all fat stock be sold by live weight." Mr. A. D. Mathieson (Milang) read an interesting paper, "The Possibilities and Necessities of Agriculture." Mr. S. Bottrill (Strathalbyn) moved, and Mr. W. Hargreaves (Port Elliot) seconded, "That the next Conference be held at Strathalbyn." The motion was carried. The Government Dairy Expert (Mr. P. H. Suter) delivered an address in which he dealt with several aspects of the dairying industry. The evening session was opened with "Free Parliament," and on the motion of Mr. J. M. Yelland (Milang), seconded by Mr. W. Giles (Milang), it was decided "That the Advisory Board be asked to recommend that the Government inaugurate a school of correspondence in agriculture." The following resolutions were also carried:—"That the Southern Branches be represented on the Advisory Board." "That the Government be asked to take steps to insure the destruction of noxious weeds." "That portion of the funds collected under the provision of the Dairy Improvement Act be used for the purpose of paying in whole or in part the cost of transporting pedigreed bulls from one part of the State to another"; and "That more attention be given to the inspection of cream sent to factories; that experts be sent out regularly to instruct dairymen in danger of milk contamination, and the need for proper transit of cream to the factories, and to inspect their premises." The Director of Agriculture (Professor Arthur J. Perkins) then delivered an address, "The Growing of Foodstuffs for Dairying."

CONFERENCE AT CLEVE.

Delegates from the Cleve, Yadnarie, Salt Creek, Miltalie, and Elbow Hill Branches of the Agricultural Bureau met in conference at Cleve, on Friday, August 25th. The Department of Agriculture was represnted by Mr. C. P. Hodge (Instructor for Mallee Lands), Mr. J. B. Harris (Orchard Instructor for Northern District), Mr. A. H. Codrington (Wool Instructor, School of Mines), and Mr. D. C. Gregory. Mr. S. H. Pearce (Chairman of the Cleve Branch), presided, and extended a cordial welcome to the visiting officers and delegates. Mr. C. P. Hodge (Instructor for Mallee Lands) then delivered the opening address, which was followed by a paper contributed by Mr. A. M. Wilson (Miltalie), entitled "The Improvement of Farm Stock." The Chairman (Mr. S. H. Pearce) read a paper entitled "The Development of New Country," which was well discussed by those present. Mr. C. P. Hodge delivered an address in which he dealt with the layout of a new holding in the mallee. He emphasized the necessity for having in mind a definite plan when clearing new country. The buildings should be as near the centre of the block as convenient, and no more country should be cleared than could be kept under control. The first crop should be wheat, followed by oats, pasture, and fallow. During the afternoon session Mr. W. E. Hier (Yadnarie) contributed a paper entitled "How Observations of Nature will Enable Farmers to some extent to Foretell Future Seasons," which was followed by a paper entitled "Sheep," by Mr. R. Whyte (Cleve). Mr. A. H. Codrington (Wool Instructor) then delivered an address on wool classing. The merino, he said, was a good serviceable sheep, both for wool and meat, but breeders should be guided by the general climatic conditions when selecting the type to be kept. They were restricted to small flocks in that district, but an effort should be made to get the maximum result from that flock. The best animals should be culled from the flock and mated with good rams to create a breeding flock, and that flock in turn should be gradually improved by mating with a better class ram each year. He emphasized the necessity for packing the wool neatly in packs of even quality, and sewing up with colored twine so that it could be distinguished easily from the wool. Mr.

J. B. Harris (Government Orchard Instructor) then delivered an address on the pruning of fruit trees and vines. He advised members before laying out an orchard to plant a breakwind to protect the young trees. He was not in favor of importing the trees, but would sow the seeds and bud the young trees, because the soil conditions of the Peninsula were different from those of the mainland. The object of pruning was to produce a large quantity of fine quality fruit, and to obtain the maximum quantity of fruit from a minimum amount of framework. The evening session was commenced by a paper entitled "A National Need—More Producers," by Mr. J. J. Deer (Yadnarie). Resolutions were then carried—(1) Requesting the Government to construct a weir in the Poomanooknie Creek; (2) that all agents be required to give farmers carbon copies of the weights of wheat delivered; (3) asking the Government to find a market for oats; (4) asking that the black kangaroo be placed on the vermin list in the county of Jervois; (5) urging better protection for superphosphate on the Port Lincoln line of railway; (6) seeking better telegraphic, educational, and road and railway facilities on Eyre Peninsula; and (7) supporting a continuance of the voluntary wheat pool. It was decided that the next Conference of Franklin Harbor Branches should be held at Cleve.



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ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board of Agriculture was held on Monday, September 11th, 1922, there being present Mr. W. S. Kelly (Chairman), the Director of Agriculture (Professor Arthur J. Perkins), Colonel J. Rowell, C.B., Messrs. A. M. Dawkins, F. Coleman, Captain S. A. White, the Chief Inspector of Stock (Mr. A. M. Williams), and the Secretary (Mr. H. J. Finnis).

Evaporation of Fruit Experiments.—It was decided to publish the report on this matter prepared by the Director of Chemistry (Dr. W. A. Hargreaves).

Berri Experimental Orchard.—The Horticultural Instructor (Mr. George Quinn), who was asked to make a statement on the resolution of the River Murray Conference that the scope of the work at the Berri Experimental Orchard should be increased, reported that " The annual reports of the tests and field researches now in progress indicate that the programme is already a reasonably ambitious one, and it is, therefore, not my recommendation that such new work should be laid down in the immediate future. It is rather to the carrying of the present tests to some tangible conclusion that our efforts should, in my opinion, be bent. I do not, in thus summarising the matter, desire to convey the impression that no new experiments should be laid down in the event of some outstanding question arising upon which we may possibly throw light, but deem it best as a general course of action to try to finalise some of the many experiments which are now in hand. It should not be forgotten that tests and experiments with perennial plants, such as fruit trees and grape vines, must be conducted over a period of a good many years before all types of seasonal vagaries can be said to have had their effect taken into account in the final summary and conclusions. We now have at the Berri station much work in hand, each year bringing additional plots into bearing, thus necessitating an increase in ordinary labor in handling the plants and their produce, and the exercise of greater care on the part of the skilled officers in recording the results. It is with a view to meeting this position that I have asked for an increased vote for labor and equipment in the current year's Estimates, and believe by providing in this way the necessary means to carry out the tasks we have already undertaken, the Government would best meet the wishes of those who brought forward this resolution—a resolution which, perhaps, we may be pardoned for viewing as an unsolicited vote of confidence in our efforts passed by the persons who are vitally interested, and presumably capable of forming an opinion of the same."

Eradication of Stinkwort.—A communication was received from the Tatiara Branch stating that the mortality amongst sheep, consequent upon eating stinkwort when in flower and wet with rain or dew, had been considerable. It was decided to forward the communication to the Chief Inspector of Stock for report.

Registration of Bulls.—Communications were received from the Mundalla, Tatiara, and Balhannah Branches relating to the Dairy Improvement Act, It was decided to suggest to the Branches that it would be well to allow a period of 12 months to elapse before suggesting amendments.

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I might state that while returning *via* Queensland, that in one or two towns where I had not sent on supplies of lubricating oil, I had the misfortune not to be able to procure 'Golden Shell,' and was forced to take a substitute, another make. It would be of interest to you to know that my oil gauge on the very cold mornings with 'Shell' Oil registered 6lbs., falling back to 3lbs. during the afternoon, when the temperature was high and the going hard. But coming down through Queensland on another brand of oil, my oil gauge in the morning went right past the last figure (10) on starting up, and before noon dropped back often below 1lb. pressure. This was due entirely to oil obtained in Queensland being very thick and heavy whilst cold, but becoming very thin after being heated.

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Yours very truly,
(Signed) H. M. AUNGER, Manager,
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The British Imperial Oil Company Limited.

ALL STATES AND NEW ZEALAND.

Congress of Women's Branches.—A suggestion was received from the Saddleworth Women's Branch that the Annual Congress be made more attractive for women delegates. The Secretary was requested to take action.

Alteration of Name of Branch.—A request was received from the Lone Gum Branch suggesting that the name of the Branch might be altered, and that in future it might be known as the Lone Gum and Monash Branch. The request was granted.

Roseworthy Agricultural College Winter School.—The Morchard Branch of the Bureau forwarded a resolution to the effect that at the next winter school the course of lectures be arranged in sections so that the different branches of agriculture, horticulture, dairying, &c., could be dealt with on different days. It was decided to forward the resolution on to the Principal of the Roseworthy Agricultural College, but at the same time intimating to the effect that the Board were not in accordance with the suggestion.

Emus Destroying Crops.—The Keith Branch reported that large numbers of emus were making their appearance in the wheat crops at harvest time. It was no uncommon sight, they said, to see from 150 to 200 emus in a crop of wheat. It was decided to ask that a report might be obtained on the matter from the Fisheries and Game Department.

Trucking Yards at Mindarie.—A communication was received from the Mindarie Vigilance Association requesting that this matter might be placed before the Railways Commissioner. The Secretary was requested to advise the Association that the matter did not come within the scope of the Advisory Board.

Resolutions from Milang Conference.—The following resolutions were carried at the Conference of Southern Branches :—" That all fat stock be sold by live weight." It was decided that this matter be dealt with at the forthcoming Congress. " That the Advisory Board be asked to recommend that the Government inaugurate a scheme for teaching agriculture by correspondence." The Secretary was instructed to make inquiries as to results attending similar efforts in New South Wales. " That the Advisory Board ask the Government to take steps to insure the destruction of noxious weeds." On the motion of Captain White, it was decided to bring the matter under the notice of the Government, urging the seriousness of the position, and requesting the Government to enforce the provisions of the Act. " That the Southern Branches of the Agricultural Bureau be represented on the Advisory Board." This matter was left in the hands of the Chairman to interview the Minister of Agriculture. " That more attention be given to the inspection of cream sent to factories ; that experts be sent out regularly to instruct dairymen and to inspect their premises, and take steps to secure the proper transit of cream to factories " : On the motion of Colonel Rowell, it was decided to place the matter before the Minister of Agriculture. " That portion of the funds obtained from the licensing of bulls be utilized for the purpose of paying either the whole or part of the cost of transporting pedigreed bulls from one part of the State to another " : It was decided to forward the resolution on to the Dairy Improvement Board.

Resolutions from Cleve Conference.—The following resolutions were carried at the recent Conference of Franklin Harbor Branches :—(1) " That all agents be required to give farmers carbon copies of weights of wheat delivered " : On the motion of Colonel Rowell, Mr. Coleman and the Secretary were appointed to interview the Chamber of Commerce with the object of endeavoring to arrange for this to be done. (2) "That this Conference urge the Government to construct a weir in the Poomanooknie Creek": It was decided that this matter did not come within the scope of the Advisory Board. (3) "That the Government be asked to find a market for oats": The Secretary was instructed to reply that the only way to dispose of it at the present time was to market it through livestock. (1) "That the black kangaroo be placed on the vermin list in the county of Jervois": It was decided to forward the resolution to the Fisheries and Game Department with a request for a report. (5) "That the Government be asked to take more precautions in the sheeting of superphosphate on the Port Lincoln railway line": This matter was received. (6) "That this Conference strongly urges the Government through the Advisory Board to provide better telegraphic, educational, and road and railway facilities on Eyre Peninsula": The Secretary was instructed to reply that the matter had the sympathy of the Board, but it was outside their jurisdiction. (7) "That this Conference favors the continuance of the voluntary wheat pool": This matter was received.

Resolutions from Pinnaroo Conference.—The following resolutions were carried at the Conference of Pinnaroo Line Branches:—(1) "That this Conference greatly appreciates, and heartily endorses the Government's action in demanding the registration of all bulls": This resolution was forwarded on to the Minister for his information. (2) "In the opinion of this Conference where weighbridges exist merchants should take the weight of the load of wheat in bulk": On the motion of Captain White, Mr. F. Coleman and the Secretary were deputed to interview the Chamber of Commerce on this question.

Forthcoming Conferences.—The Secretary reported that Conferences of Branches of the Agricultural Bureaux would take place in the following districts on the dates mentioned:—Mallee Lands District, at Veitch, on October 3rd and 4th; Hills District Branch, on October 12th; Eyre Peninsula District Branches, at Minnipa, on October 19th and 20th.

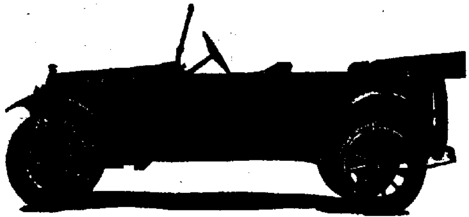
Life Members.—The names of the following gentlemen were added to the roll of life members:—Messrs. P. Miller (Mount Pleasant Branch), A. L. Morphett and E. Dummill (Clarendon Branch).

New Branches.—Approval was given to the formation of new Branches at Lipson and Currency Creek, with the following gentlemen as foundation

GRAIN GROWERS!
Please Note—
WHEN MARKETING YOUR
WHEAT, OATS, BARLEY, PEAS, CHAFF, &c.,
IT WILL PAY YOU TO GET IN TOUCH WITH
CHARLES WHITING,
GRAIN AND PRODUCE MERCHANT,
CENTRAL MISSION BUILDINGS, ADELAIDE.

members :—List of members—Lipson—E. J. Barrand, R. C. Carr, W. A. Oswald, W. R. Blacker, H. H. Swaffer, D. C. Stewart, S. L. Swaffer, T. E. Hudson, A. B. Wishart, S. F. Potter, W. E. O'Connor, W. S. Brown, C. Partington, T. Partington, E. Treasure, F. Pugsley. List of members—Currency Creek—P. Plummer, A. Plummer, B. Plummer, R. Plummer, R. Gorden, J. Fuller, W. Dix, G. Fydock, W. Shipway, J. Pitt, H. R. Pitt, P. J. Sunman, P. H. Kilsby, Mr. Cockshell, Mr. Henley, Mr. Bricknell, Mr. Dent.

It was decided to close the Dowlingville and Coonawarra Branches. The following names were added to the rolls of existing Branches :—Claypan Bore—L. H. Powell ; Kongorong—W. G. Morrison ; Mypolonga—V. Cromwell ; Collie—G. Lake, J. S. Anderson ; Big Swamp—H. M. White ; Pygery—J. E. C. Gregory, W. Peters ; Renmark—T. S. Cutlack, E. J. M. Miller, D. Dekien, R. Dix, R. Isaac ; Goode—C. Kelly ; Miltalie—W. G. Siegman ; Younghusband—E. Groth, L. Brophy, H. Day ; Yadnarie—E. G. Richardson ; Ashbourne—E. T. Strawson, W. J. T. Clark ; Coonalpyn—J. B. Rynne ; Berri—W. H. Harris ; Mount Bryan—Wetherill, A. S. Wardle, J. W. Noble, H. J. Edwards, H. A. Edwards ; Tarcowie—S. Burker ; Brentwood—L. A. Traeger, H. E. Smith ; Windsor—F. Arnold ; Maitland—S. McCauley ; Shoal Bay—O. B. Schaefer, A. S. G. Barrett ; North Booborowie—J. J. Sulivan ; Rapid Bay—H. J. Jones, R. Jones, P. Chirgwin ; Wynarka—E. Mewett, W. N. Pearce, C. Gore ; Kingston-on-Murray—Chas. Dixon, jun. ; Kangarilla—L. Giles, J. Giles, Geo. Crane ; Eurelia—E. H. Hall ; Booleroo Centre—Rev. Howland ; Tatiara—L. E. Verco ; Glossop—H. H. Stone, O. Turner, H. Hutching, D. L. Finey, S. Warman, T. Bird, H. W. Weste ; Naracoorte—W. Noller, S. Hart ; Talia—D. T. Lewis ; Green Patch—A. G. Schwerdt ; Roberts and Verran—C. Smith ; Mount Pleasant—M. McCallum ; Borrika—C. S. Wardley, John Wardley, A. J. T. Besley ; Beetaloo Valley—P. Curtin ; Gumeracha—Wyborn ; Wudinna—C. B. Plew ; Bundaleer Springs—K. Lawrie, L. Baker ; Pompoota—E. Day, L. Pollock, C. Campbell, J. Hanlon, H. Anderson, C. E. J. Clarke, C. J. Dillon, A. L. Lambert, J. McLoughlin ; Stockport—W. Rhode, T. A. Higgin, C. E. Manger ; Keith—H. Jenkins, S. R. B. Makin, W. O. Fulwood, O. M. Densley, A. M. Densley, E. R. W. Ennis ; Virginia—E. McEvoy, J. Gilbert ; Wanbi—C. J. Kaiser, W. H. Arney, N. L. Arney, W. H. L. Arney, G. F. Harrington, E. T. *Yorcombe, A. Hughes, E. Hennig, — Hennig, F. A. Falkiner, E. D. Paterson,* W. Hughes ; Murray Bridge—A. F. T. Thompson ; Parilla—J. A. Mann, W. C. Brown, C. Phyllis ; Coorabie—T. F. Gurney ; Belalie North—T. Dunstan, S. Nappir, Joe Cummings, P. Fox, D. Fox, A. B. Feltus ; Lone Gum—C. Moroney, G. P. Fisher, A. H. Heward, A. J. Soderburg, W. G. Trotman, M. J. Nolan, H. G. Taylor ; Marama—A. C. Greig, F. Richards, F. H. Richards W. S. Gray, G. Mills, F. H. Hutchinson, S. M. Hutchinson, R. Greig, T. Smith, E. C. Tilly, T. H. Glasson, J. S. Churches, T. Hinkley, A. Cooper, F. Spurling, W. Spurling, W. C. Watkins, A. Burt, T. Whittaker ; Ramco—H. Doecke, H. Perry ; Mount Remarkable—Dickson ; Port Elliot—J. B. Gregory, J. S. Brown ; Mount Barker—C. Parrington ; Balaklava—A. G. Traeger ; Blyth—H. Snow ; Waikerie—W. R. Dale ; Ashbourne—W. Stone ; Hookina—H. G. Spiers ; Carrow—J. N. Harrowfield, W. P. Charlton ; Winkie—A. Smith, D. McDonald, H. J. Noades, J. Neish ; Miltalie—R. R. Hogan ; McLachlan—H. Flavel, J. L. Norman ; Lake Wangary—J. A. Shepperd, R. E. Hull ; Elbow Hill—H. A. Dunn, H. B. Phillipps, Don Cameron, A. D. McCutcheon, K. J. Harvey, H. Rehn, J. A. Dunn.



HUPMOBILE

The good things you have always heard about the HUPMOBILE are true.

You can confirm them wherever you go. Everyone knows them; everyone thinks highly of the HUPMOBILE, whether he owns one or not; everyone has a good word for it.

If this friendly feeling were to be boiled down into a few words, it probably would be expressed something like this:

It pays to own the Hupmobile. Everyone seems to know that it is especially long-lived, especially faithful in service.

The HUPMOBILE is a notable car for style; it has great beauty; it is comfortable to the point of being luxurious.

But the thing that people tell each other most often is, that it is almost impossible to wear it out.

COMPLETE WITH NICKEL FINISH AND SPARE TYRE,

Price, £550

(Wire Wheels extra).

FULL PARTICULARS FROM

PHOENIX MOTOR Co., Ltd.,
112-120, PIRIE STREET, ADELAIDE.

DAIRY AND FARM PRODUCE MARKETS.

A. W. Sandford & Co., Limited, reported on October 1st, 1922 :—

BUTTER.—As was only to be expected for the month of September, supplies of all lines of produce were very heavy, and with the excellent spring weather for the growth of all fodders it looks as though production will be well maintained. The surplus requirements in butter are being disposed of to the other States, and also for London, so that the market is being kept well cleared. At the close of the month first grade factory and creamery fresh butter in bulk sold at 1s. 6d.; best separators and dairies in prints, 1s. 4½d. to 1s. 5½d.; fair quality, 1s. 2½d. to 1s. 3½d.; store and collectors, 1s. to 1s. 1½d.

EGGS.—The market has been again well supplied during the month, and although prices are considerably higher than were ruling at the same period last year, stocks are well cleared, values being 1s. for fresh hen, and 1s. 1d. for duck.

CHEESE.—There are still a few parcels of cold stored matured being offered, whilst fair quantities of new are coming along each week from the different factories. Nice clearances are now being effected with local buyers and interstate operators are buying heavily. Prices at the end of the month were 7½d. to 8½d. for large to loaf.

HONEY.—Whilst there is not much alteration to report in this line, there is an improved demand for the lower grades, prices being—Best clear extracted, 3½d. to 4d.; second grades, 2d. to 2½d. Beeswax, 1s. 8d. for clear samples.

ALMONDS.—There are very few consignments now being received and purchasers are unable to obtain their full requirements at, Brandis, 13d. to 13½d.; mixed softshells, 12d. to 12½d.; hardshells, 6d. to 6½d.; kernels, 1s. 10d. to 1s. 11d.

BACON.—A steady demand has been experienced throughout the month, but at the close, middles and rolls were somewhat neglected, the rates now being—Best factory-cured sides, 13d. to 14d.; hams, 1s. 4d. to 1s. 4½d. Lard, in packets, 8d.; in bulk, 7½d.

LIVE POULTRY.—Unfortunately the marketings of the past few weeks have not been nearly equal to requirements, and consequently there has been very spirited bidding for all lines submitted. Poulterers, restaurant-keepers, and others were, and are still, operating strongly, so that rates realised should be satisfactory to consignors, who would be well-advised to forward at once any surplus poultry they have for disposal. Crates obtainable on application. Rates:—Prime heavyweight roosters, 5s. 3d. to 7s.; nice condition cockerels, 4s. to 5s.; plump heavy-weight hens, 5s. to 6s. 2d.; medium hens and roosters, 3s. 6d. to 4s. 9d.; ducks, prime condition, 3s. to 4s. 3d.; fair condition, 3s. to 4s. 3d.; geese worth up to 7s.; turkeys, prime condition, 1s. to 1s. 5d. per lb.; poor to fair condition, 9½d. to 11½d.; fattening sorts, lower; pigeons, 10d. to 11d.

POTATOES.—Values have well-maintained, but towards the end of the month the Victorian markets are reported easier, so that lower prices are likely to rule here shortly. Quotations at the end of the month were:—Best Victorians, 11s. to 12s. per cwt. on trucks, Mile End.

ONIONS.—These have maintained a high level throughout, that is for well condition, and the values at the end of the month were from 17s. to 18s. per cwt., on trucks, Mile End.

THE AGRICULTURAL OUTLOOK.

REPORTS FOR MONTH OF SEPTEMBER.

The following reports on the Agricultural condition and outlook of the areas re- esented by the Government Experimental Farms mentioned below have been repared by the respective Managers:—

Booborowie.—Weather—September was characterised by fine weather with drying orth-west winds in between, with a good rain on the 26th, 159 points having been egistered up to the time of writing. Crops—The crops up to the 25th were showing igns of dry weather, but now are looking well, and some good yields should be obtained ith favorable weather up to the end of the ripening period. Natural feed—Is fairly bundant, and should now make rapid growth after the good spring rain. Stock—All n good condition. Pests—Rabbits are numerous in a few isolated cases, but on the hole are not so plentiful as they generally are. Miscellaneous—Fallowing is finished, nd farmers are busy working down their fallow. Shearing is nearly completed.

Turretfield.—Weather—The beginning of this month was very dry, exceptionally eavy frosts were experienced on several occasions; 125 points of rain were registered uring the month, the bulk of it falling during the last week. Crops are very patchy; here are a few good crops, but many fields look very poor. Rubbish has choked the heat in many places. Natural feed—The dry weather checked the growth of feed; nother good rain would help greatly. Stock—Sheep and lambs are looking well. Other tock has improved, but working horses are showing the result of heavy working. Pests—On the fallows the lucerne flea is still doing damage to the feed. Miscellaneous—Several ineyards still remain unploughed, the quick setting in of the dry weather having made it ad for working the vineyards.

CATERPILLAR
TRACTORS.
Agery, September 9th, 1922.
Messrs. Vrai Limited, Torrensville.
Dear Sirs,
We have tested the T-35 "Caterpillar" here, and find we can plough 14¾ acres 3in, deep on hard soil, on a fuel consumption of 12galls. of kerosene and ½pint of petrol.
(Signed) H. CADD & SONS,
Per H. H. Cadd.
This test was run for a period of 5 hours 27 minutes on kerosene, and gave a result of 1s. 10d. per acre for fuel, oil, and grease.
THERE IS ONLY ONE "CATERPILLAR."
HOLT BUILDS IT.
There is a "Caterpillar" model for every job. May we send you particulars?
VRAI LIMITED, TORRENSVILLE, Sole Agents.

RAINFALL TABLE.

The following figures, from data supplied by the Commonwealth Meteorological Department, show rainfall at the subjoined stations for the month of and to the end of September, 1922, also the precipitation to the end of September, and the average annual rainfall.

Station.	For Sept., 1922.	To end Sept., 1922.	Av'ge to end Sept., 1922.	Av'ge. Annual Rainfall
FAR NORTH AND UPPER NORTH.				
Oodnadatta	—	3·86	3·65	4·83
Marree	0·27	2·26	4·56	6·10
Farina	0·44	3·25	5·17	6·73
Copley	0·55	3·04	6·67	8·45
Beltana	0·68	4·34	6·97	9·01
Blinman	0·94	6·11	9·96	12·62
Tarcoola	0·17	2·63	4·54	7·59
Hookina	1·00	9·84	10·43	13·30
Hawker	1·14	10·89	10·06	12·72
Wilson	1·10	10·08	9·71	12·33
Gordon	0·95	8·03	8·68	11·05
Quorn	1·20	8·70	10·70	14·00
Port Augusta	0·57	7·94	7·45	9·54
Port Augusta West	0·53	7·17	7·53	9·53
Bruce	0·82	7·52	8·10	10·40
Hammond	1·17	9·02	9·10	11·61
Wilmington	1·92	14·50	14·65	18·17
Willowie	1·42	12·20	9·58	12·16
Melrose	1·88	21·22	18·87	23·21
Booleroo Centre	1·26	12·84	12·19	15·53
Port Germein	0·84	9·91	9·95	12·79
Wirrabara	1·27	13·37	15·84	19·62
Appila	1·34	11·46	12·65	14·98
Cradock	1·03	9·44	8·78	11·18
Carrieton	1·33	9·81	9·89	12·63
Johnburg	1·23	10·23	9·15	10·50
Eurelia	1·14	9·89	10·35	13·36
Orroroo	0·92	10·41	10·64	13·57
Nackara	1·25	11·31	9·15	11·33
Black Rock	0·98	10·43	9·75	12·51
Ucolta	0·79	7·83	9·34	11·90
Peterborough	1·14	10·39	11·68	13·43
Yongala	1·34	12·21	11·17	14·41
LOWER NORTH-EAST.				
Yunta	0·25	4·92	6·61	8·75
Waukaringa	0·52	3·87	7·32	8·41
Mannahill	0·47	2·63	6·32	8·54
Cockburn	0·59	4·11	7·77	8·22
Broken Hill, N.S.W.	0·48	5·45	—	9·91
LOWER NORTH.				
Port Pirie	0·76	11·46	10·59	13·36
Port Broughton	0·98	12·12	11·47	14·18
Bute	1·07	11·22	12·83	15·65
Laura	1·16	15·59	14·46	18·16
Caltowie	1·44	15·39	13·40	17·07
Jamestown	1·36	16·21	13·92	17·74
Bundaleer W.Wks.	1·61	15·60	14·08	17·89
Gladstone	1·08	15·92	12·64	16·13
Crystal Brook	1·20	13·31	12·53	15·74
Georgetown	1·25	18·31	15·70	18·44
Narridy	1·10	11·48	13·10	16·41
Redhill	1·51	14·36	13·59	16·75

Station.	For Sept., 1922.	To end Sept., 1922.	Av'ge. to end Sept., 1922.
LOWER NORTH—*continued.*			
Spalding	1·34	14·28	15·91
Gulnare	1·27	15·94	15·06
Yacka	1·25	13·16	12·30
Koolunga	1·47	12·87	11·43
Snowtown	1·24	12·82	13·05
Brinkworth	1·48	13·17	13·82
Blyth	1·48	15·70	13·58
Clare	2·04	24·17	19·96
Mintaro	2·13	24·15	23·86
Watervale	2·14	26·34	20·25
Auburn	1·90	22·41	19·65
Hoyleton	1·46	16·74	14·14
Balaklava	1·43	14·39	12·54
Port Wakefield	0·86	10·30	10·77
Terowie	1·10	11·25	10·48
Yarcowie	0·95	13·37	11·05
Hallett	1·35	12·35	12·83
Mount Bryan	1·66	13·41	13·20
Kooringa	1·78	16·97	14·41
Farrell's Flat	1·85	16·48	15·25
WEST OF MURRAY RANGE.			
Manoora	1·17	18·96	17·39
Saddleworth	1·38	17·44	15·78
Marrabel	1·54	19·55	15·50
Riverton	1·97	20·11	16·58
Tarlee	1·77	18·94	14·08
Stockport	1·57	16·61	12·84
Hamley Bridge	1·46	14·96	13·03
Kapunda	1·67	17·40	15·85
Freeling	1·50	16·91	14·13
Greenock	1·82	19·24	16·13
Truro	1·37	16·97	16·16
Stockwell	1·35	17·20	15·11
Nuriootpa	1·28	17·25	16·76
Angaston	1·42	19·83	18·01
Tanunda	1·38	18·97	17·96
Lyndoch	1·51	18·80	18·55
Williamstown	1·85	21·57	22·61
ADELAIDE PLAINS.			
Mallala	1·25	14·70	13·34
Roseworthy	1·16	14·14	13·72
Gawler	1·45	14·44	15·38
Two Wells	0·99	12·19	12·78
Virginia	0·83	12·28	13·92
Smithfield	1·02	11·93	13·60
Salisbury	1·57	16·07	14·95
North Adelaide	1·71	21·75	18·04
Adelaide	1·61	18·44	17·17
Glenelg	1·49	16·73	15·05
Brighton	1·88	17·11	16·87
Mitcham	1·53	26·42	19·79
Glen Osmond	1·76	25·59	21·16
Magill	1·48	22·61	20·73

RAINFALL—*continued.*

ation.	For Sept., 1922.	To end Sept., 1922.	Av'ge. to end Sept., 1922.	Av'ge. Annual Rainfall
MOUNT LOFTY RANGES.				
Gully	1·89	21·39	23·51	27·77
West	3·72	45·69	37·82	46·62
	3·44	43·60	36·79	44·06
lon	2·45	31·56	27·34	32·98
tt Vale	1·89	21·72	18·58	22·76
ngs	1·75	18·50	16·86	20·27
a	1·92	26·07	21·52	25·87
	1·37	19·23	15·90	20·24
ga	3·11	29·31	24·24	28·44
nville	1·94	21·92	15·37	20·51
illa	2·61	25·01	19·48	22·99
Pleasant	2·25	25·65	22·45	27·04
od	2·05	23·65	24·24	29·26
cha	2·60	28·07	27·42	33·25
ok Reservoir	2·71	36·68	—	—
ale	2·52	28·04	29·55	35·54
de	2·09	27·95	26·63	32·08
lde	2·06	30·31	28·64	34·62
	2·65	23·36	23·42	28·43
Barker	2·12	29·55	25·69	31·13
	2·13	29·92	27·27	32·91
field	2·63	26·91	25·06	30·53
	3·12	32·96	29·67	36·04
byn	1·66	16·85	15·75	19·26
MURRAY FLATS AND VALLEY.				
	1·85	12·65	14·30	18·66
	0·92	13·66	12·44	15·42
ne's Creek	1·34	15·70	11·51	14·55
on	0·66	12·40	11·44	14·68
Bend	0·78	12·67	11·20	14·11
Bridge	0·78	11·10	10·92	13·83
on	0·80	13·71	12·52	15·37
	0·50	9·93	9·29	11·52
	0·90	11·22	12·24	15·24
	0·57	9·25	9·78	12·13
ch	0·65	7·93	8·36	10·82
own	0·43	4·65	9·79	10·16
	0·99	13·61	13·24	17·50
ds	0·68	9·44	8·46	10·92
	0·77	7·49	6·90	9·18
	0·89	7·02	7·16	9·68
Corner	0·87	6·96	8·29	11·08
	1·17	10·24	9·57	12·58
	1·36	8·94	8·05	11·02
WEST OF SPENCER'S GULF.				
	0·46	7·93	8·16	10·02
ell	0·52	9·68	7·11	9·10
Bay	0·52	9·33	10·39	12·19
	0·52	10·56	10·58	12·25
	0·33	6·38	8·20	10·32
ay	0·56	9·21	9·41	10·92
	0·79	1·02	10·72	13·05
Bay	0·39	11·46	12·81	15·11
	0·33	10·43	13·02	15·38
ton	0·74	14·82	14·23	16·53
	1·15	12·72	—	18·87

Station.	For Sept., 1922.	To end Sept., 1922.	Av'ge. to end Sept., 1922.	Av'ge. Annual Rainfall
WEST OF SPENCER'S GULF—*continued.*				
Port Lincoln	1·17	14·25	16·78	19·73
Tumby	0·71	9·30	11·74	14·62
Carrow	0·53	7·73	11·32	14·64
Arno Bay	0·75	6·19	10·56	13·08
Cowell	0·39	5·80	8·23	11·52
Point Lowly	0·66	8·66	—	—
YORKE PENINSULA.				
Wallaroo	0·52	9·20	11·64	14·09
Kadina	0·65	10·97	13·35	15·93
Moonta	0·58	10·21	13·67	15·25
Green's Plains	0·88	11·24	13·03	15·72
Maitland	1·63	14·19	16·65	20·05
Ardrossan	1·13	12·00	11·56	13·95
Port Victoria	1·49	12·93	12·74	15·35
Curramulka	1·63	12·99	15·04	18·16
Minlaton	1·50	13·46	15·40	17·79
Brentwood	1·52	12·27	12·82	15·54
Stansbury	1·39	12·50	14·13	16·96
Warooka	1·95	16·07	15·04	17·69
Yorketown	2·08	13·59	17·39	17·22
Edithburgh	1·50	13·14	13·62	16·53
SOUTH AND SOUTH-EAST.				
Cape Borda	1·13	21·09	21·89	25·01
Kingscote	1·09	13·64	16·30	19·01
Penneshaw	1·48	15·96	16·58	18·97
Victor Harbor	1·50	19·01	17·65	21·43
Port Elliot	1·69	19·59	15·47	20·00
Goolwa	1·59	13·85	14·59	17·83
Meribah	1·13	9·69	—	—
Mindarie	0·59	7·40	—	—
Karoonda	1·67	13·39	—	—
Pinnaroo	1·44	10·05	12·31	15·32
Parilla	1·73	10·84	11·38	14·39
Lameroo	1·16	11·32	12·58	16·27
Parrakie	1·30	11·28	11·18	14·27
Geranium	1·60	17·07	12·68	15·96
Peake	1·44	14·16	11·83	15·91
Cooke's Plains	1·00	14·44	11·86	14·84
Coomandook	0·73	14·14	13·87	17·31
Coonalpyn	1·22	13·34	13·86	17·44
Tintinara	2·09	16·34	14·62	18·54
Keith	2·37	15·93	15·29	18·19
Bordertown	1·29	12·86	15·28	19·44
Wolseley	1·41	13·27	14·24	18·06
Frances	1·58	13·59	—	19·78
Naracoorte	2·81	18·65	17·98	22·46
Penola	2·76	18·78	21·07	26·36
Lucindale	2·22	18·68	18.76	22·91
Kingston	2·93	23·16	20·35	24·44
Robe	2·06	26·59	20·79	24·58
Beachport	2·22	22·43	23·13	27·27
Millicent	2·85	25·85	24·66	29·37
Kalangadoo	2·96	24·55	—	—
Mount Gambier	2·59	21·93	25·26	31·46

AGRICULTURAL BUREAU REPORTS.

INDEX TO CURRENT ISSUE AND DATES OF MEETINGS.

Branch.	Report on Page	Dates of Meetings		Branch.	Report on Page	Dates of Meetings	
		Oct.	Nov.			Oct.	Nov.
Alawoona	*	—	—	Georgetown	‡	—	4
Aldinga	*	—	—	Geranium	276	28	25
Amyton	*	9	6	Gladstone	260	6	3
Angaston	*	—	—	Glencoe	290	—	—
Appila-Yarrowie	*	—	—	Glossop	*	—	—
Arthurton	‡	—	—	Goode	*	4	8
Ashbourne	*	—	—	Green Patch	271	2	6
Balaklava	*	14	11	Gumeracha	282	9	6
Balhannah	289	6	3	Halidon	281	—	—
Barmera	274, 281	3	7	Hartley	283, 284	4	1
Beetaloo Valley	260	—	—	Hawker	*	3	7
Belalie North	*	—	4	Hilltown	*	—	—
Berri	281	4	8	Hookina	‡	2	6
Big Swamp	274	—	—	Inman Valley	*	—	—
Blackheath	282	—	4	Ironbank	*	—	4
Black Springs	*	3	7	Julia	*	—	—
Blackwood	‡	16	20	Kadina	*	—	—
Block E	281	—	—	Kalangadoo	‡	14	11
Blyth	260	7	4	Kangarilla	284	—	—
Booleroo Centre	260	6	3	Kanmantoo	*	7	4
Borrika	276, 281	—	—	Keith	290	—	—
Bowhill	*	—	—	Ki Ki	*	—	—
Brentwood	‡	5	2	Kilkerran	268	13, 31	30
Brinkley	281	—	4	Kimba	*	—	—
Bundaleer Springs	260	2	—	Kingscote	*	—	—
Burra	*	—	—	Kingston-on-Murray	*	—	—
Bute	266	3	28	Kongorong	292	5	2
Butler	269	—	—	Koonibba	*	6	3
Cadell	*	—	—	Koppio	272	2	6
Canowie Belt	*	—	—	Kybybolite	*	5	2
Carrow	270	5	2	Lake Wangary	‡	—	—
Cherry Gardens	289	3, 31	—	Lameroo	‡	6	3
Clanfield	*	—	—	Laura	*	7	4
Clare	‡	6	—	Leighton	*	—	—
Clarendon	290	2	30	Lenswood and Forest Range	‡	2	27
Claypan Bore	‡	4	8	Lone Gum and Monash	281	11	8
Cleve	*	4	1	Lone Pine	*	—	—
Collie	270	—	—	Longwood	290	7	4
Colton	*	27	24	Loxton	276	—	—
Coomandook	*	4	1	Lucindale	*	—	—
Coonalpyn	*	13	3	Lyndoch	‡	—	—
Coorabie	270, 271	—	4	McLachlan	274	—	—
Cradock	*	—	—	Maitland	268	5	2
Crystal Brook	‡	—	4	Mallala	260	2	6
Cygnet River	*	5	2	Maltee	274	6	3
Dawson	*	—	—	Mangalo	*	—	—
Denial Bay	*	—	—	Marama	281	9	9
Edillilie	‡	28	25	Meadows	‡	11	8
Elbow Hill	‡	10	7	Meningie	*	—	—
Eurelia	256	6	10	Milang	*	13	11
Frances	§	28	25	Millicent	292	7	4
Freeling	*	—	—	Miltalie	‡	—	4
Gawler River	‡	2	6				

INDEX TO AGRICULTURAL BUREAU REPORTS—*continued.*

Branch.	Report on Page	Dates of Meetings.		Branch.	Report on Page	Dates of Meetings.	
		Oct.	Nov.			Oct.	Nov.
Mindarie	*	2	6	Riverton (Women's)	*	—	—
Minlaton	*	6	3	Roberts and Verran	274	5	2
Minnipa	‡	4	1	Rockwood	‡	2	6
Mintaro	257	—	—	Rosedale	‡	—	—
Monarto South	278	—	4	Rosy Pine	*	—	—
Moonta	268	6	3	Saddleworth	*	—	—
Moorak	‡	5	2	Saddleworth (Women's)	261	—	—
Moorlands	*	—	—	Salisbury	266	3	7
Moorook	278, 281	—	—	Salt Creek	*	—	—
Morchard	256	—	4	Sandalwood	*	—	—
Morgan	*	—	—	Second Valley	*	—	—
Morphett Vale	*	5	2	Shoal Bay	*	3, 31	28
Mount Barker	286	4	1	Smoky Bay	274	—	4
Mount Bryan	257	—	—	Spalding	*	—	—
Mount Byran East	*	—	—	Stockport	262, 264	—	—
Mount Compass	*	—	—	Streaky Bay	*	—	—
Mount Gambier	293	14	11	Strathalbyn	290	3	7
Mount Hope	‡	7	4	Talia	272	9	13
Mount Pleasant	‡	13	—	Tantanoola	*	7	4
Mount Remarkable	*	—	—	Taplan	†	7	11
Mundalla	294	4	1	Tarcowie	256	3	7
Murray Bridge	*	19	21	Tarlee	262	—	—
Mypolonga	*	4	1	Tatiara	296	21	18
Myponga	*	—	—	Two Wells	266	—	—
Nantawarra	‡	5	2	Uraidla & Summertown	‡	2	6
Naracoorte	295	14	11	Veitch	*	—	—
Narridy	*	7	4	Virginia	*	—	—
Narrung	*	7	4	Waikerie	‡	—	—
Neeta	*	—	—	Wall	*	—	—
Nelshaby	‡	—	—	Wanbi	281	5	—
Netherton	‡	—	—	Warcowie	*	—	—
North Booborowie	258, 260	—	—	Watervale	‡	—	—
North Bundaleer	*	—	—	Weavers	268	2	6
Northfield	*	11	8	Whyte-Yarcowie	‡	—	—
Nunkeri and Yurgo	*	1	5	Wilkawatt	280	7	4
O'Loughlin	*	4	1	Williamstown (Women's)	266	4	1
Orroroo	‡	—	—	Williamstown	265	6	3
Owen	‡	6	3	Willowie	‡	4	1
Parilla	281	—	—	Wilmington	*	4	1
Parilla Well	‡	9	6	Windsor	266	—	—
Parrakie	*	—	—	Winkie	281	—	—
Paruna	281	—	—	Wirrabara	‡	7	4
Paskeville	2 8	3, 31	28	Wirrega	296	—	—
Pata	279	—	—	Wirrilla	‡	7	4
Penola	‡	7	4	Wolowa	*	—	—
Petina	‡	28	25	Wudinna	*	7	4
Pinnaroo	*	6	3	Wynarka	282	7	4
Pompoota	281	11	8	Yabmana	*	—	—
Port Broughton	*	6	3	Yacka	260	3	7
Port Elliot	288	21	18	Yadnarie	‡	3, 31	28
Port Germein	*	7	4	Yallunda	*	—	—
Pygery	272	2, 30	—	Yaninee	*	—	—
Ramco	‡	2	6	Yeelanna	272	7	4
Rapid Bay	288	7	4	Yongala Vale	*	—	—
Redhill	258	10	—	Yorketown	*	—	—
Rendelsham	‡	4	1	Younghusband	282	5	2
Renmark	‡	—	2				
Riverton	*	—	—				

* No report received during the month of September. ‡ Held over until next month.
† Annual Meeting. § Formal.

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

Every producer should be a member of the Agricultural Bureau. A postcard to the Department of Agriculture will bring information as to the name and address of the secretary of the nearest Branch.

If the nearest Branch is too far from the reader's home, the opportunity occurs to form a new one. Write to the department for fuller particulars concerning the work of this institution.

REPORTS OF BUREAU MEETINGS.

UPPER-NORTH DISTRICT.

(PETERBOROUGH AND NORTHWARD.)

EURELIA.

August 11th.—Present: seven members and visitors.

Care of Farm Horses.—In the course of a short paper dealing with this subject Mr. F. Dinan said the first work in the care of the horses should be the erection of a good stable, which should be provided with a separate stall for each horse, so that each animal would receive a fair share of the feed. Before yoking up the team in the morning the collars should be cleaned and examined for any hard lumps that might have formed in the lining. If any were found they should be tapped with a hammer, otherwise sores would develop on the shoulders of the horses. Grooming was most important, and particular care should be given to the cleaning of the shoulders. The collar should fit the shoulders fairly tightly; if it was too loose it chafed the skin and caused sores to develop. Horses whose skin was very tender should have a strip of sheepskin placed between the collar and the shoulder. The speaker held the opinion that not sufficient care was taken of the young horse when it was being broken in, for bad faults in horses could usually be traced to carelessness on the part of the man handling the colt. Messrs. Brown and Manning then gave a report of the proceedings of the Orroroo Conference.

TARCOWIE (Average annual rainfall, about 15½in.).

August 8th.—Present: 15 members.

The Blowfly Pest.—In the course of a short address on this subject, Mr. C. A. Kotz said the blowfly had caused serious loss to the sheepfarmers in that district, and it was most necessary that some steps should be taken to check the spread of the flies. He thought that more care should be taken in disposing of dead carcasses that too frequently were left lying about in the paddocks, and that farmers should do more to protect carrion-eating birds.

Early *versus* Late Fallow.—Mr. J. P. Smith, who initiated a discussion on this subject, held that there was no great difference in the ultimate results as between early and late fallowing, provided the land could be well worked before seeding, and sown early in the season. Mr. C. A. Kotz spoke in favor of early fallow. If the land was dirty, it gave the weeds a chance to germinate, and they could be destroyed by subsequent cultivations. Mr. Ninnes thought that if the land was very dirty it would be advisable to fallow it for two years. Mr. J. Smith said that for land that was carrying a growth of black oats, deep ploughing was the best method to adopt to clean the field.

MORCHARD, August 5th.—Mr. F. Scriven gave an interesting account of the course of lectures given during the 1922 Winter School for Farmers at Roseworthy Agricultural College, and Mr. McCallum reported on the proceedings of the Annual Conference of Upper Northern Branches of the Agricultural Bureau recently held at Orroroo.

ORROROO, August 12th.—Mr. Tapscott read an article "The Care and Feeding of Dairy Cows," and an interesting discussion followed.

MIDDLE-NORTH DISTRICT.

(PETERBOROUGH TO FARRELL'S FLAT.)

MINTARO.

August 5th.—Present: seven members.

Sheep on the Farm.—Mr. Garrett read the following paper dealing with this subject: "Sheep are one of the most essential and useful forms of livestock on the farm, for besides being a source of profit to the owner, they supply the household with meat, they improve the condition of the land, and also assist in keeping down the weeds on the fallow. In making a selection of a breed the farmer should keep two things in view, first, the sheep that will return the largest profit in wool, and secondly, the best breed for mutton. In selecting ewes for wool, the farmer should aim at quantity rather than quality for three reasons. First, the wool from the farm being a small lot, it cannot be classed in sufficient quantity to make it attractive to buyers. Secondly, the sheep are kept so much on fallow land that the fleece becomes very 'earthy'; and thirdly, on most farms the sheep drink at the same well as the rest of the farm stock, and during the summer months the place becomes very dusty, so that every time the sheep go to drink they carry away a quantity of dust in the wool. For the above reasons I do not think it profitable for a farmer to grow wool of a high quality. I recommend the Merino as the farmer's ewe for wool, and for raising export lambs the Merino ewe should be mated with the Dorset Horn ram. I have selected the Dorset Horn cross lamb as they mature quickly and can be placed on the market three weeks earlier than any other lamb. The early lambs usually bring the best result, and when the lamb is sold the dry ewe can be turned on the fallow land. Cross-bred ewes will produce much better lambs than the Merinos and give a higher percentage in lambs, but the cost of feeding the cross-bred ewes would be greater than that of the Merinos. For instance, land that would carry 80 cross-bred ewes would carry 100 Merinos, with the following results:—The 80 cross-bred ewes would probably give a return of 80 lambs, which would bring £1 per head on the market, total profit for cross-bred lambs, £80. From the 100 Merino ewes a fair percentage of lambs would be 85 per cent., which would bring 17s. 6d. per head, total profit for Merino lambs £74 7s. 6d., being £5 12s. 6d. less than the value of the cross-bred lambs. The 100 Merino ewes would probably return 10s. per head for wool, total value £50, while the 80 cross-bred ewes would return about 6s. per head for wool, total value £24, being £26 less than the Merinos, leaving a total credit to the Merinos for wool and lambs of £20 7s. 6d." In the discussion that followed Mr. Moore favored the Shropshire ram in preference to the Dorset Horn, while Mr. Blatchford expressed a preference for the Romney March. Mr. H. Schunke asked the best time for lambing. The writer of the paper considered that the lambs should be dropped not later than May, and if short of feed, he advocated hand feeding until grass became available. He did not favor the pure Merino lamb for the farm. In reply to Mr. Moore, Mr. Garrett said that the Dorset Horn cross would mature more quickly than the Shropshire cross, and that whilst the Romney Marsh carried a lot of wool it could not compare with the Dorset Horn as a breed for fat lambs.

MOUNT BRYAN (Average annual rainfall, 15·87in.).

July 29th.—Present: 14 members and six visitors.

Breaking in the Draught Colt.—Mr. J. Bryce, who contributed a paper on this subject, said the draught colt should be from 2½ to 3 years of age before he was broken in to the work of the farm. A strong yard, enclosed with a high fence, was necessary, and when the lassoo had been placed around the colt's neck it should be allowed to race around the yard until it was tired. If, after a few tries, the colt would not allow the farmer to go up to its head, the rope should be placed around a strong post. Should the colt choke down, the rope should be immediately slackened, and when it stood up again it not be so ready to hang back. After the rope had been again hitched around the post, an attempt should be made to put a halter on by slipping it down over the neck. Winkers should not be used when breaking in the colt as they only tended to make the animal frightened. For preference, a bar-bit should be used, the off side being attached first and then the near side. Next, a neck rope should be fastened to the near side bit ring and the rope taken from the colt's neck. A firm hold should then be taken of the rope attached to the bit ring and the colt made to run around the yard whilst a gradual tension was placed on the rope. After a few rounds the colt should be stopped by a quick pull on the rope. The animal should be quietly approached and harnessed with the collar and hames. The rope should then be shifted to the other bit ring, and the animal made to run around in the opposite direction. A long rope should then be placed on the near side bit ring, and the colt driven out into the open, two men having hold of the rope. One of the men should go behind the colt whilst the other attempted to lead it. The colt should then be taken back into the yard and left for several hours with the rope fastened to the bit. The speaker did not think it was necessary to mouth the draught colt as that only tended to make the animal throw up its head. When the colt was released the halter should not be taken off, all that was necessary was to remove the bit. The next day the horse should be caught again, using a long piece of wire to hook into the chin strap of the halter. The colt would not try to get away when it found it was caught. The running around should be repeated, with frequent spells to rub the animal down. The writer considered that the best place to work the young colt was in the body of the wagon team. If the colt was worked in an implement team he should be worked between two of the quietest animals, and be securely fastened by a neck rope to the collar of each of the two horses. The speaker did not favor the practice of harnessing the colt to a log, because when a job called for a single horse it usually fell to the lot of one of the tried workers of the farm. During the first week the colt should not be worked for more than three or four hours each day, and it was most important that the collar should fit properly. When the colt was taken from the team its shoulders should be thoroughly washed with cold water to guard against scalding. The colt should be given a name immediately handling was commenced, which should be repeated whenever it had to be spoken to.

NORTH BOOBOROWIE (Average annual rainfall, 16·35in.).

July 13th.—Present: eight members.

Fallowing.—Mr. H. A. Storr, who read a paper dealing with this subject, said fallowing was the most important item in the cycle of operations connected with the growing of wheat, and unless it was done thoroughly the best results could not be obtained. The speaker considered it advisable to commence ploughing as soon as possible after seeding was finished. By starting early, one had a better chance of finishing early, thereby giving the soil that was to bear next season's crop the full benefit of a rest. He recommended ploughing to a depth of about 4in., a little deeper if the season proved a very wet one, and especially on farms that had been worked for a number of years. The plough should do its work in a clean, even manner. If ploughed roughly, the land was much harder to deal with later on in the year. After ploughing, harrowing, and cross-harrowing, the soil should be fairly fine and smooth. Next, he suggested working the cultivator at a depth of about 3in., working crossways to the plough. A few sheep on the fallow assisted in keeping down the rubbish, added manure to the soil, and helped to break up the clods; but if a cultivator was used three or four times, the rubbish would disappear and a good seedbed would have been prepared. The Hon. Secretary (Mr. F. Clark) read the annual report, and the officers were elected for the ensuing term.

REDHILL (Average annual rainfall, 16·79in.).

August 8th.—Present: nine members.

Vermin Destruction.—" If every landholder made a determined effort, in a systematic and methodical manner, to rid his property of vermin, less would be heard of the destruction of lambs by foxes," said Mr. E. Murphy, in a paper under the above heading. Continuing the speaker expressed the opinion that the best method of destroying foxes was with poison baits in the form of dead birds. About as much strychnine as would cover a sixpenny piece should be placed in the mouth of the dead bird, and it was also advisable to make an incision in the bird's breast. A good trail could be made by securing a tin of sardines and pouring the contents over an old bag, which should be dragged over the lambing paddock, and the baits then placed in the trail. Some farmers preferred to commence poisoning rabbits just before seeding, but he thought that to keep the pest in check constant war should be waged upon them. The fumigator and pump should be kept constantly employed, and it was also a good plan to saturate old bags with sulphide of carbon and ram them into the holes. Sparrows also did a good deal of damage to the standing crops at harvest time by breaking off the heads of corn, and he considered that many of these birds could be destroyed by distributing good wheat in those places where the sparrows congregated until they became accustomed to it, and then substituting poisoned grain. He was of the opinion that the Vermin Destruction Act should be more rigidly enforced than was at present the case.

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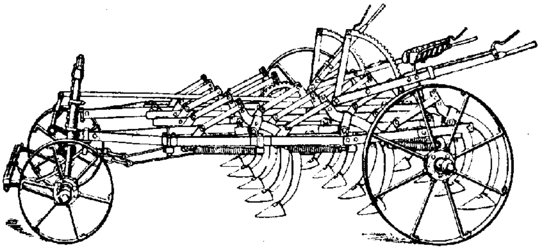

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YACKA.

July 5th.—Present: 21 members.

Machinery on the Farm.—"The cost of farm machinery is a very big item and every farmer should take care of the implements" said Mr. C. Burford in a paper under the above heading. The most essential point was the erection of a good weatherproof shed and the implements directly they had finished work for the season should be placed under cover. In overhauling the drill the old manure should be chipped off the plates and stars. Next one wheel should be packed up, all grease removed, and the bearings cleaned with kerosine, and an examination made to see that the oil was feeding freely through the holes and cups. The knotter knife and cutting knife of the binder should be removed and sharpened, the grease scraped off, and the oil holes cleaned out with a pricker and kerosine. If the canvases had been removed the previous season, they should be put on the binder, buckled on tightly, and a test made to see that they ran in correct alignment with the rollers. When ready to make a start, every bearing should be oiled, and after working for a round, the holes should be examined to see that every bearing was receiving plenty of oil. At the completion of the season's work the canvases on the binder should be taken off and hung up away from the attacks of mice and rats. All loose nuts should be tightened and a dab of paint placed on each, so that they would not shake off in the next season. When the harvester or thresher was taken from the shed it should be thoroughly overhauled and made to run freely, chains should be tightened and oiled, broken and worn out parts replaced, belts laced up tightly, the elevators put in proper running order, and all old wheat cleaned out of the machine. In the case of a thresher with chain elevators, the chains should be adjusted until they were "just tight." After the harvest was finished every chain should be loosened and a piece of wood placed under the offside corner of the comb to prevent the machine from sagging. In the discussion that followed, Mr. Rundle advised the use of a heavy oil in preference to kerosine for cleaning the bearings after their work was finished.

A further meeting was held on August 2nd, when a debate took place on the subject of "Bulk Handling of Wheat," 29 members and 29 visitors being present. The following members supported the affirmative:—Messrs. O. Badman, C. Rundle, and A McCallum. While Messrs. W. Richards, F. White, and J. Rundle debated the negative side of the question. The adjudicator, Mr. Gent, judged the affirmative debaters winners with 233 points against 230 for the negative.

BEETALOO VALLEY, August 4th.—Several items of local interest were brought before the meeting, and an instructive discussion followed.

BLYTH August 5th.—Mr. J. A. Pratt read a paper "Breaking in Light Horses" and an interesting discussion followed.

BUNDALEER SPRINGS, August 7th.—Mr. J. E. Rundle of the Yacka Branch attended the meeting and delivered an address, "Ailments of Farm Stock."

GLADSTONE, August 24th.—The Chairman (Mr. G. M. Black) read an article dealing with "Field Rats and Mice," from which much useful information was obtained.

BOOLEROO CENTRE, August 4th.—Mr. I. Michael gave an address in which he recounted the work performed at the Roseworthy Agricultural College by the 1922 Winter School for Farmers.

NORTH BOOBOROWIE, August 8th.—Mr. Dawson read an article from the *Journal of Agriculture*, "Useful Hints for the Farmer," and an interesting discussion followed. Other subjects of local interest were also brought before the meeting.

LOWER-NORTH DISTRICT.

(ADELAIDE TO FARRELL'S FLAT.)

MALLALA (Average annual rainfall. 16·88in.).

August 14th.—Present: seven members.

The Use of Tractors on the Farm.—Mr. C. Johnson, who contributed a paper dealing with this subject, was of the opinion that as the multi-furrowed plough succeeded the single-furrowed implement, so would the tractor in time supersede the horse on the farm. The steam tractors proved worthless, because of the enormous amount of fuel and water required by them and on account of their excessive weight. An engine capable of developing the strength of 10 horses at the draw bar did not compare with 10 average horses, because of the loss of power through the ground being unable to carry the weight. Comparing the endurance of the horses and the engine, there was no doubt an advantage in favor of the tractor, because the horses had to be replaced through death, old age, and injuries, but on the other hand one should not lose sight of the fact that from the moment the tractor commenced work, depreciation had to be taken into account. When starting work in the morning all that was necessary for the engineer to do was to charge the engine with spirit and water and fill the oil caps, whereas the teamster had to rise earlier, feed and groom his team, harness up, and proceed to the paddock, and if the field was some distance away it would mean a considerable saving in time both going to and from work. Then again the horses had to be stopped for dinner. Loss of time through breakages would be considerable unless the man in charge of the tractor thoroughly understood his job. Another advantage in favor of the tractor was that a better pace could be maintained throughout the day. In periods between work it was necessary to feed the horses, whereas with the tractor it ceased to consume fuel from the moment it was stopped in the paddock. He firmly believed that the tractor had come to stay, and when properly established the purchase of an engine would be a sound investment.

SADDLEWORTH (WOMEN'S), (Average annual rainfall, 19·69in.).

August 8th.—Present: 10 members and four visitors.

Mrs. Garrett contributed a paper, "Butter-making." The main points of the paper being: good cows well fed and cared for, and the practice of strict cleanliness with the separator and all other milking utensils. The cream should be kept for three days before being made into butter. During the winter time the cream should be placed in a warm room over night. The writer advised the potting of butter during the flush of the season, as it would come in very useful when there was not much feed about for the cows.

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STOCKPORT (Average annual rainfall, 15·89in.).

August 18th.—Present: 15 members and visitors.

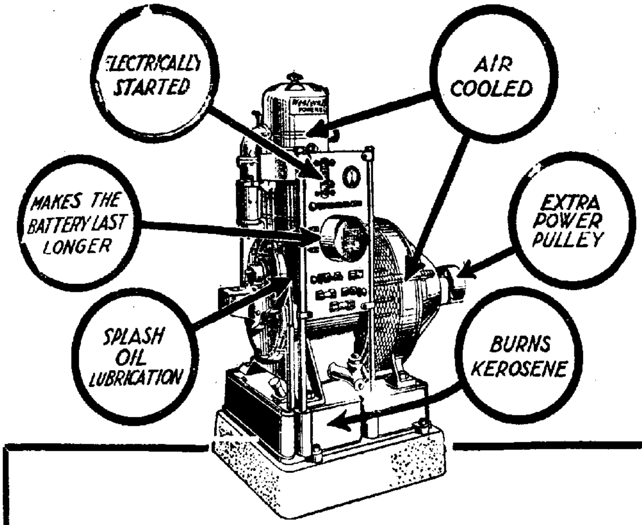
Preparing Income Tax Returns.—The following paper was read by Mr. H. J. Benier:—"The average farmer is not always an adept at bookkeeping, but I think the matter could be fairly well met by the keeping of two books, as follows:—A rough diary, and an ordinary book of foolscap size with double-ruled money columns. These, with the help of the cheque-book heels and bank passbook, should enable most farmers to obtain a good idea of the turnover for the year. By using the rough diary, entries can be made at the date of any transaction, and later entered into the account book. It is a grave mistake to allow any accumulation of accounts, and a good plan is to enter all accounts from the diary in the account book at least once a month. To keep the account book accurately, it will be necessary to divide the book into sections, so that all items of revenue and expenditure can be properly tabulated and made out on the taxation returns when the latter are being prepared. For revenue I suggest the following headings:—(1) Wheat, (2) other cereals, (3) wool, (4) sheep, (5) cattle, (6) hay and chaff, (7) skins and hides, (8) any other stock, (9) farm produce, *e.g.*, milk, eggs, cream, butter, &c., (10) sundry receipts. For expenditure—(1) Wages, (2) rent and interest, (3) cornsacks, twine, &c., (4) seed and fertilisers, (5) saddler and blacksmith, (6) rates and taxes, (7) oil, petrol, &c., (8) repairs, (9) depreciation, (10) sundry expenses, *e.g.*, insurances, carriage, &c. Wages must be made out for each individual employed, together with the period employed. A good idea is to set aside several pages at the rear of the account book for the annual valuation of stock and farm produce on hand. The stock valuations must be as shown on the income tax return, and a fair average value for produce on hand. If these items are not attended to, there is likely to be considerable inconvenience when the Taxation Office asks for returns for, say, the last three or four years. It is very necessary with all stock transactions to keep a correct record of numbers sold, &c., and in fact all sales should be noted in the books accurately in respect to number of bags of wheat, tons of hay, &c. Do not forget the all-important item of depreciation. You will find the Federal Department allows you to write off so much yearly, but the State only allows you the price of replacing worn-out implements. When making out the depreciation account, do not forget to enter them in the account book. It pays to file all invoices correctly, for by so doing much inconvenience is saved, and in conjunction with your cheque-book heels much time will be saved in keeping accurate records. If you pay any accounts in ready cash, enter them up whilst still fresh in your memory, as very often a receipt is either not obtained, or mislaid. Where a farmer employs his sons or daughters, he is entitled to be allowed wages for them, and will enter these in the account book under that heading. Particularly note all deductions that are allowable, such as £30 yearly for each child under the age of 16 Federal tax, £15 State. Life insurances and friendly societies payments are deductable from Federal but not from State returns. Another point is in regard to the keep of employees. On Federal returns the employees' keep includes meat and any produce of the farm, which it will be necessary to show as used off the farm, but in the State returns the employees' keep is exclusive of these."

TARLEE.

August 8th.—Present: 26 members and four visitors.

Mr. P. J. Hogan read an interesting paper, "The Evolution of the Trotter," and an interesting discussion followed.

The Modern Clydesdale Horse.—The following paper was read by the Hon. Secretary (Mr. A. M. Fuller):—"The Clydesdale is a breed of heavy draught horse, indigenous to Scotland, and deriving its name from the district in which it was founded, and its type and characteristics were fixed and determined. Clydesdale is the old name for Lanarkshire, through which the river Clyde flows. The origin of the Clydesdale breed, according to Mr. William Aiton's writing in the year 1810, we believe is the result of a cross between the native Scotch mares and some Flemish stallions imported into the country by one of the Dukes of Hamilton about the middle of the seventeenth century. These are said to have greatly improved the breed in the county of Lanark. There are various strains of the Clydesdale breed which may be traced back through the medium of the Clydesdale Stud Book, such as those named in Lanark—the "Galloway Clydesdales," the "Kintyre Strain," the "Old Stitcher" line, the Ranffshire "Comets," and the "Old Clyde" strain. In the west of Scotland the modern type owes much to the horse Broomfield Champion (95). The outstanding characteristics of the Clydesdale horse is the combination of weight, size, and activity with exceptional wearing qualities in respect to the feet and limbs. The head of a typical Clydesdale has a broad jaw, ending, as a rule, in a well-tapered muzzle with large open nostrils, his eye is usually full and vigorous,



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yet mild, his forehead broad and full between the eyes, while from the eyes the forehead tapers gradually up to the ears, which are long and active. Breeders of Clydesdales should attach considerable importance to these points, as a horse of such a description will generally be found to be of excellent temper, easily trained, docile, and very wise in cart or plough. Experience alone can teach one when the head is well set on to the neck, but the latter should be strong, massive, and of medium height, while the shoulder should be more oblique than in the English draught horse; this, indeed, is one of the distinctive features of the Clydesdale, as is his long, quick step, for which he is so justly admired. Quite as essential as the slightly oblique and closely topped shoulder, is a strong forearm. This part, from a side view, should be broad, loaded with long, strong muscles, so as to give him full power to bring forward the part beneath, and in length should be proportionate to the length of the shoulder, a flat and broad knee is also essential; the shank bone should be flat from a side view, thick, and gently rounded from a front view, and tapering to an edge as it goes back; the back from the knee down should possess a nice flowing fringe of silken hair, which should spring from the very edge of the bone, and good judges will not have a horse the feather of which has a coarse matted appearance. The sinews of the leg should be thick, strong, thrown well back from the bone, and capable of being felt with the hand; if not, the leg is not a good one, however thick, as a soft, round leg in which the sinews are not very well defined, will not stand work. The lower end of the shank bone or fetlock should also be large in all, so as to give full play to the tendons; the Clydesdale judges are also very particular as to this and also to the pastern. An upright pastern will not do in the Clydesdale which requires a pastern to suit the formation of the shoulder and to confer the necessary elasticity to counteract the concussion caused by his quick firm step. Without a sound, well-shaped, healthy foot a horse is of no use at all, however symmetrical and strong; his foot must be open and round like a mason's mallet; the hoof leads must be wide and springy with no suspicion of hardness such as may lead to the formation of sidebone or ringbone; his back should be short and his ribs well sprung from the backbone like the hoops of a barrel: broad, low-set hindquarters, with muscular thighs descending into broad and proportionately-developed hocks. To sum up the good points of the hind end of the Clydesdale, from the hock to the ground the leg should be short, broad, flat, clean, even and straight or slightly inclined forward, the sinews standing out from the bone and having a similar fringe of hair to that on the fore-leg and rising as high as the bottom of the hock joint. The average height of the Clydesdale horse is about 16 hands 2in., though there are several stallions to be found as high as 17 hands, but very few over that height. The fashionable color is brown, that of a deep dark shade preferred, with a more or less defined white mark on the face, while black is also common. White markings are now very common, and have come to be regarded as a sign of purity of blood. In examining a horse when standing, a good judge will, in addition to running his eyes over the various points mentioned, see that the animal stands even and firm on its feet, which in some horses are inclined slightly inward; to be the least inclined outward is a bad fault, and one which gets worse with age. In walking, the horse should, if approaching you, come with his head well carried, and with an apparently measured stride, lifting his feet well off the ground and placing them down again regularly, evenly, and with apparent deliberation. On a side view one can notice if his action be even, if his fore and hind action be in unison, for in horses with long backs and weak loins the two ends seem to be under different control, and the hind legs being, in a manner, dragged with the toes along the ground, an unpleasing effect is produced. In going away at a walk, a horse should plant his hind feet forward as deliberately as his fore ones, at the same time raising and bending the leg at the hock, which should be evenly carried forward; if the hocks are turned out in moving them forward the action is not good, and a Clydesdale breeder considers this an exceedingly bad fault in either horse or mare. In trotting, the horse should bend the legs at the knees and hocks, and from a hind view the inside of the fore hoofs should almost be seen at every step. If the animal be inclined to move wide behind, this fault will easily be discovered at the trotting pace.

TARLEE.

Present: 27 members and two visitors.

Fallowing.—"Judged by the amount of fallowing done on South Australian farms, it shows that it is considered to be a work of the utmost importance," said Mr. G. Cornish in a paper on the above subject which he read at a recent meeting. One of the problems of the farmers, he said, was to hold the spring and winter rains in the soil so that the plants would receive the benefit of them during the hot months when they were growing rapidly. Thorough cultivation did more than anything else to hold the moisture. By thoroughly stirring the soil a fine surface or dust mulch was created which assisted the soil in retaining the moisture. The first step towards that end was fallowing. The advantages of winter fallowing were generally recognised; the primary one being that of the conservation of moisture. A seed bed was prepared for the wheat, which was now recognised as being of vital importance; a careful cultivation helped in the cleaning of the land; the work was more evenly distributed over the year, and finally, fallowing in their district assisted very materially in increasing the average, for the larger part of the land was unploughable in the summer or autumn. The layer of fine surface soil assisted the capillary action of the moisture in the land in two ways—it drew the water up to the roots of the plants in times of scarcity and guarded against evaporation into the air. Preparation of the seedbed and depth of fallowing:—In the reddish ground where the soil soon ran together, and where a seedbed was easily formed, the plough should be set at least 2in. deep, preferably a little deeper. In the majority of cases, and most essentially so in the loose dark soil of their district, fallowing should not be done too deeply. He did not favor fallowing the loose ground more deeply than was required to cut the growth of weeds. As to the seedbed, the objective of the farmer should be to have the wheat sown on a firm bottom with a covering of soil 1½in. to 2in. deep. The subsoil should be packed and the topsoil stirred to a fine tilth in free working soils; but red land should not be worked down too finely, as a heavy rain would cause it to set down. Fallowing also stimulated the growth of rubbish, especially summer weeds, which were very numerous. After the work with the plough was completed the land would be in a rather rough and lumpy state, and the harrows should then be brought into use for levelling and breaking down the surface soil. He considered it advisable to harrow behind the plough before any great time had elapsed and not wait until fallowing was finished. One of the finest helps towards keeping down the growth of weeds was the running of a suitable number of sheep on the farm. Summer working of the fallow was a good practice if weather conditions were suitable, and care should be taken that stinkwort, which was so prevalent in that district, did not get too strong, as it could be easily killed before the plants had made very much growth. Again with fallowing one could use lighter and larger implements at seed time, and larger areas could be put under crop. There were several points to be kept in mind at fallowing time, "(1) Fallow as early as possible, (2) fallow no more than you can subsequently manage to keep clean, (3) use the levers on the cultivator and do not go too deep, (4) keep sheep if possible, (5) work according to the weather and the weeds, (6) see that the implements are in good order." An interesting discussion followed.

WILLIAMSTOWN.

August 4th.—Present: 24 members and four visitors.

Principles of Breeding Farm Livestock.—Mr. C. Ross, who contributed a paper dealing with this subject, said there were few instances in which the tillage of the soil did not involve, in some way or other, the presence of livestock on the farm, either as a means of draught or as a source of food. Livestock were an essential on the farm, for the droppings of the animals assisted in keeping the soil in good condition. To the breeder it was not only the individual good points of the animals that were of importance, but also the power that each animal possessed of transmitting those good points to its progeny. Uniformity of type was more pronounced in the wild animal than in the domesticated animal, and was due chiefly to the continuous action of natural selection and to the unhampered intercrossing of all individuals of the same species. The great variations of types which were observed in domesticated stock could be accounted for by the artificial selection of the animals by man. Race to prepotency represented the accumulated prepotency of the ancestors of the breed, whilst individual prepotency stood for the power of the individual to stamp its form and likeness on its offspring. Race prepotency was invariably stronger than that of the individual, and that was why a pedigreed animal was invariably more prepotent than a mongrel. Inbreeding was the crossing of closely related animals. An exceptionally good sire would be mated with his daughter, and a grand daughter by himself, but the mating of full brothers with full sisters should never be resorted to. The crossing of full first, and even second, cousins was quite permissible. The object of inbreeding was to transmit the good qualities of the sire to its offspring; but, on the other hand, the defects would also be transmitted, so that it was most necessary for the breeder to use the utmost discretion in mating the animals. Reversion to type was frequently noticed, even in animals of the highest breed. Reversion was more common in the crossbred than in the pure bred animal. When the female of one species was put to the male of another, and they proved to be mutually fertile, the offspring was said to be a hybrid, but when the female and male were of different breeds of the one species, the offspring was a crossbred. Practically all hybrids were barren. Exception to this had arisen, but in that case barreness made itself felt in the second or third generation. The only hybrid of practical use to man was the mule—the progeny of the mare by the jack ass. Crossbreeding and also continuous crossing was sometimes adopted to produce fat lambs and also to improve certain existing breeds. Constitutional and natural vigor were of the utmost importance in all animals used for breeding purposes, and it might be said that without those two points an animal would count for nothing, in so far as breeding was concerned. Animals known to be well bred should be used as much as possible, as they would prove strongly prepotent in all good points, particular attention being given to the line of descent of the sire, for whilst the female was only responsible for her immediate progeny, the sire was responsible for the whole herd. By that it was not meant that the dam should be neglected, for she should, if possible, be a well bred animal, whilst all those that were unsatisfactory as breeders should be culled from the herd. It was quite possible, however, by the judicious use of good and proved sires, to build up a good herd or flock from good or indifferent dams.

WINDSOR.

August 8th.—Present: 24 members and visitors.

MARKETING OF WHEAT.—A paper dealing with this subject was contributed by Mr. H. Bubner, in which the writer expressed the opinion that it would be more satisfactory to the farmers if a fixed standard could be made for wheat, with two or three different grades of grain—first grade 63lbs., second grade 61lbs., third grade 59lbs. The farmer could then be paid according to the quality of wheat that he produced, and an incentive would be offered for the producers to place nothing but the best grain on the market. The speaker was also of the opinion that the introduction of the weighing of wheat over weighbridges would give a more general satisfaction than the single bag method at present in vogue.

SALISBURY, August 8th.—Mr. H. H. Corbin, B.Sc. (Consulting Forester and Lecturer in Forestry at the Adelaide University), attended the meeting and delivered a lecture illustrated with lantern views, on the subject "Afforestation."

TWO WELLS, August 8th.—Several subjects of local interest were brought before the meeting, and a keen discussion followed.

WILLIAMSTOWN (Women's), August 2nd.—Mrs. J. Haworth read a paper, "The Advantages and Benefits of the Agricultural Bureau," and an extract from Dr. Ramsey Smith's book, "Farm Sanitation." The officers were then elected for the ensuing year.

YORKE PENINSULA DISTRICT.

(TO BUTE)

BUTE (Average annual rainfall, 15·42in.).

MANAGEMENT AND CARE OF FARM HORSES.—At a recent meeting of the above Branch the following paper was read by Mr. C. James:—"In my opinion the horse is of vital importance to the farmer in the progression of his farm, and on that account every care and attention should be given to the horses. A team that is well cared for can always be relied upon to do the work that is expected of it. To maintain the health and condition of the horses a good warm stable, suitably erected, is the first essential point. The ideal stable is one erected on sloping ground, with adequate provision for sunlight, free ventilation, and drainage. When built facing the east the stable provides ample protection from rough weather for the horses, as well as affording them the benefits of the sun. The yard and stalls should be cleaned out weekly, and all fowls kept out of the mangers, especially at feeding times. The stable should be constructed to allow a stall of 4ft. 6in. for each horse, and also a peg to hold each horse's harness, and a rope so that during the morning and noon feedings each horse can get his full share of feed. I advocate the tying up for the two meals mentioned only, as disaster may result in the case of fire, &c. if the horses remain tied up over night. Too much stress cannot be placed upon the regularity of the feeding hours. The object to be achieved in feeding the working horse is to give him a feed that is sufficiently rich in protein, starch, fats, &c., to make good the normal waste of tissue; and of the foodstuffs available in such a district as this, I do [illegible] think there is any to surpass that of oaten hay chaff. Only sufficient chaff should be placed in the manger at once as is necessary for one meal. Fresh chaff tempts the appetite of the horse. At the midday feed all harness, including the bridle, should be removed, to permit of the horse having freedom and comfort. During the busy periods the noon feed should extend from one and a half to two hours, and horses should not be worked after sundown, nor more than eight hours during fallowing. All work should be interspersed with frequent short spells. The medicinal powers of rock salt should not be overlooked. A quantity kept in the stable for the leisure use of the animals makes an excellent aperient. It is a good practice to water the horses before feeding. The trough should be some distance from the stable, so that the horses when going to and from drinking may have the advantage of a roll, preferably on a sand patch, which should be adjoining the stable. Of equal importance is the matter of grooming. Sore shoulders are a constant source of annoyance to the teamster, and while I do not think it possible to absolutely prevent trouble in this direction, much can be done to reduce the trouble to a minimum. This can only be accomplished by keeping the horse in good condition and providing it with a well fitting collar. Sore shoulders are usually resultant upon the poor condition of the horse. The shoulders should be thoroughly brushed each morning. Leather-lined collars are preferable, as the danger of the horse's shoulders scalding is mitigated. Care should be taken to see that the mane does not work under the collar, as this causes chafing and subsequently sore shoulders. Another point: the draught of the hames should be adjusted to suit the horse. The tail, which is the horse's chief means of defence against flies and insects while in harness, should be pulled at least once a year, and should not be allowed to become cumbersome and long, for then it becomes more a hindrance than a help. With reference to young horses. Too much care cannot be expended on them in their early months, for the better the treatment the more virile, vigorous, and strong of constitution, and the more valuable will they be at breaking in time. The farmer should not be too anxious to put the young horse into harness. I consider 2½ years a good age to initiate the colt, and then he should be worked lightly for the first season. Kindness and patience are most essential when breaking in the young horse. Every farmer should keep an assortment of first aid veterinary medicines on hand to treat immediately any horse which may show symptoms of illness, and thus obviate unnecessary expense and inconvenience."

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(Signed) M. J. QUINLAN,"

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KILKERRAN.

August 3rd—Present: seven members.

Vermin Destruction.—A paper on this subject was contributed by Mr. J. W. Cogan, in which the writer stated that arsenic could be used to poison rabbits with good results by dusting it on sandalwood leaves. Strychnine was very bitter and required sweetening before it was used with the baits. The speaker also stated that he destroyed many rabbits by mixing arsenic and strychnine. To dissolve the strychnine, half a bottle of the poison should be placed in a jam tin and covered with vinegar to which a little water should be added. The contents of the tin should then be boiled. To dissolve a stick of phosphorus, it should be broken into small pieces and placed in a pickle bottle. The phosphorus should be covered with bisulphide of carbon, after which water should be added and the bottle finally corked tightly. Half an ounce of strychnine and half a stick of phosphorus should be sufficient poison to treat a bag of pollard or wheat. If there was plenty of green feed about when the baits were being distributed, a little oil of aniseed should be added to the poison. He considered that the best method of dealing with the burrows was to plough them out, and then, if in the course of a few days the burrows were opened again, pieces of wire netting should be placed over the holes. In discussing the paper, Mr. B. J. Koch said it was a difficult matter to get the rabbits to take the bait during this time of the year. He had successfully used bisulphide of carbon by soaking wool or cotton waste in the poison, placing the rags down the burrows and then closing up the holes. Mr. R. Wakefield said it was a good plan to get a number of old super. bags, set alight to them, and place them in the burrows and fill up the holes. Mr. B. A. Koch spoke of the spread of rats in the district. Mr. A. Wakefield said that when baits were set for rats a small tin of water should be set alongside of the poison. Mr. A. F. Sawade considered the rabbit smoker the best to use when dealing with burrows. Mr. A. J. Cogan said bisulphide of carbon could be successfully used to blow up the warrens

MOONTA (Average annual rainfall, 15·22in.).

August 5th—Present: 14 members.

Destruction of Foxes.—In the course of a paper dealing with this subject Mr. P Ford expressed the opinion that steps should be taken by all district councils to compel all landholders to destroy the foxes on their property. The speaker suggested that it should be made compulsory to lay poisoned baits at least three times during the year in a systematic manner, and that all fox holes should be dug out or gassed with bisulphide of carbon. One ounce of strychnine would prove sufficient for about 800 baits. These could be in the form of small pieces of flesh such as sheep liver, rabbit, mutton, and pieces of birds. The best method of laying the baits was to tie the offal of a sheep on a rope and drag it around the paddocks in large circles. An occasional stop should be made, and the baits placed in a small hole about 3in. or 4in. deep, care being taken not to handle the meat with the hands; a knife and fork should be used. After the hole was filled in the offal should be allowed to remain on the spot above the baits for a few minutes. The baits should not be distributed indiscriminately on the surface of the land as that would possibly lead to the destruction of stock and many valuable birds. An interesting discussion followed in which Messrs. Atkinson, Martin, and Ferguson took part.

MAITLAND, August 8th.—Mr. C. J. Newbold addressed the meeting on the subject "The Pooling of Barley," and an interesting discussion followed. A discussion also took place on the growing of fodder grasses suitable for the district. The matter of inaugurating district crop competitions was also brought before the meeting for consideration.

PASKEVILLE, August 8th.—Mr. L. E. Young read a paper, "Taxation," and Mr. R. D. Norris gave a short address in which he dealt with the treatment for cattle when blown after eating clover, &c.

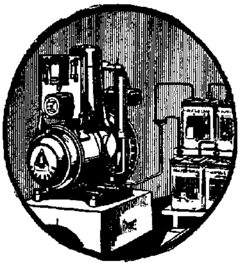
WEAVERS, August 3rd.—The monthly meeting of the Branch was held at Mr. Dodd's garden, when Mr. J. B. Harris (Orchard Instructor and Inspector) gave a lecture and pruning demonstration to a gathering of 60 people.

WESTERN DISTRICT.

BUTLER (Average annual rainfall, 16·61in.).

August 7th.—Present: 11 members and visitors.

Care of Horses' Shoulders.—Mr. A. J. Parsons, who read a paper dealing with this subject, said in spite of thorough care and attention some of the horses of the team from time to time suffered with sore shoulders. The flies irritated the sores and caused the horse to rub its shoulders on posts, &c., thereby preventing the sore from healing. When the horse had to be worked, the collar should be cleaned every morning before it was placed on the horse, or a soft pad could be placed above or below the sore to relieve the pressure on the sore. A long and knotted mane frequently caused the chafing of the skin under the collar and the formation of a sore, so that the farmer should take steps to see that the mane was not tangled. To prevent the shoulders of the young horse from scalding, the colt should not be worked for too long a period at any one time, and the sweat should be washed off the shoulders immediately after the collar had been taken off. Mr. C. F. Jericho read an article from the *Journal of Agriculture*, "Farm Gates," and a paper, "Potato Growing," was contributed by Mr. C. Stewart. Mr. A. H. Pfitzner then addressed the meeting on the subject, "The Development of Eyre Peninsula," and a good discussion followed.



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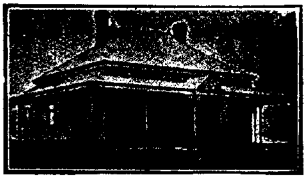

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CARROW.

August 3rd.—Present: 13 members and three visitors.

Rabbit Destruction.—In the course of a short paper dealing with this subject, Mr. J. T. Beare considered the best method of keeping the rabbits in check was by digging the burrows out as deeply as possible with a mattock, and then filling them in. The burrows should be examined during the next day or so and traps set at those holes that had been reopened. When one set of holes had been trapped for a week or nine days the traps could be taken to another set of holes. If that was done one could keep on trapping rabbits throughout practically the whole of the year. One of the main points in keeping the rabbits down was to see that all harbors for the vermin were destroyed. In the discussion which followed Mr. R. Kemp favored burning sulphur and pumping the fumes down the holes. Mr. Cowley favored digging out the burrows. Mr. T. Burt said if bi-sulphide of carbon was pumped into the burrows and exploded it would be certain death to all rabbits in the holes.

COLLIE.

August 5th.—Present: 12 members.

Mr. P. Kenny read a paper dealing with the subject "The Value of Water Conservation," in which he referred to the value of underground water, and the difficulty that confronted those engaged in farming operations who had to rely on open catchments for water supplies. A paper under the heading "Improvement in Methods of Farming" was contributed by Mr. H. Shiphard. The speaker traced the progress that had been made in the manufacture of agricultural implements since 1893, and referred to the time and labor that was saved by using up-to-date machines.

COORABIE (Average annual rainfall, 11in. to 12in.).

July 8th.—Present: 11 members and 15 visitors.

Fallowing.—The following paper was read by Mr. F. M. Underwood:—"Fallowing is one of the most important factors of wheat-growing, especially in these districts of rather uncertain and limited rainfall. The farmer should, if possible, secure a burn in the summer months over the land he intends to fallow. This clears away the rubbish and allows the plough to do its work properly, and the burn also does a vast amount of good to the soil. Ploughing should be commenced as soon after seeding operations are over as possible, as one of the chief objects of fallowing is to conserve the moisture from the one season for the use of the crop in the next. The land should be well turned over to a depth of from 3in. to 4in. It is advisable to keep sufficient stock, preferably sheep, on the land being fallowed, to keep the rubbish fed down as short as possible. This will greatly assist in the killing of the weeds and so make for cleaner fallow. Where the farmer is able to do so, I think it advisable to keep the harrows as close behind the plough as possible. This will level the ground much better than if it is not done until the ploughing is finished, when the ground that was ploughed, perhaps, six weeks or two months earlier has set. Another point in favor of harrowing immediately behind the plough is that the harrows help to kill any rubbish that the plough may not have properly covered. My reason for wanting a level surface after the plough is for the working of the cultivator. I find that the cultivator does far better work on a harrowed surface than on the ground that has simply been ploughed. After ploughing, harrowing, and cultivating the land I think it could then be left until the spring, when, if the fallow has become at all dirty, it could be cultivated again. Perhaps through the winter the first cultivating could be dispensed with and a more frequent use made of the harrows, but I favor cultivating in the late spring so as to leave the fallow with a rough, ridged surface for the dry summer months as this would greatly minimise any tendency to drift. The cultivator I recommend for use in this soft stumpy country is the 15-tyne lock-spring machine. It will do good work, and will clear any stumps that the plough will go over. I favor the cultivator against the harrows." All members present joined in the debate and agreed that harrows and sheep were the best cultivators of the fallow in that district. It was agreed that the harrows immediately behind the plough were beneficial where it could be done, but oft-times it was impossible on account of the loose stumps which had first to be removed. Difference of opinion was expressed as to whether it paid to take steps to destroy paddy melon, as it appeared on the fallow during the summer; the majority favored doing so.

COORABIE (Average annual rainfall, 11in. to 12in.).

August 5th.—Present: 11 members and six visitors.

Choice of Varieties of Wheat.—Mr. S. Riddle introduced this subject for discussion. Mr. Smart said farmers on Eyre Peninsula should take a cue from the reports published in the *Journal of Agriculture* of the results of the experiments at Minnipa. The Chairman (Mr. J. H. Murray) was of the opinion that farmers did not pay enough attention to sowing the wheats at the right time. Mr. C. Giles stated that Florence was often sown early in that district because it had the reputation of being smutproof, and consequently could be used for dry sowing. His experience was that Gluyas, sown late, very rarely went down. Mr. A. Hardy said that some years ago he had a crop of Early Para, which came out in head in August and looked like a five-bag crop, but the frost cut it and it yielded one bag of very pinched grain to the acre. Mr. Riddle said a great mistake was made in sowing early wheats too early, because frost and winds had every chance to spoil the crop before it could be harvested. The late wheats should be sown first, and the earliest varieties kept back to be sown last.

GREEN PATCH (Average annual rainfall, 25·56in.).

August 7th.—Present: eight members.

Merino Sheep.—The monthly meeting of the Branch was held at Mr. P. Sinclair's homestead, and in opening a discussion on the above subject Mr. T. Proude said he was convinced that it paid to go in for a Merino carrying plenty of wool. He had heard some of his neighbors say that the clean-faced Merino did much better than the very woolly sheep. Mr. Proude argued that by going in for bare-faced Merinos it would not be long before they became bare-legged and bare-bellied, and would naturally go back to the days when sheep would only average about 4lbs. of wool per fleece. Mr. Proude said his flock of Merinos at present would average 12lbs. per sheep, yet it was only about 10 years ago that his flock averaged half that yield. Mr. Schwerdt spoke at length in favor of the clean-faced Merino, but the majority of members thought with Mr. Proude that it paid to go in for the sheep that would give the highest return.

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KOPPIO (Average annual rainfall, 22·40in.).

August—Present : 10 members.

Worms in Sheep.—Mr. J. Newell read an article on this subject, and in the discussion that followed Mr. V. W. Gardner thought that lambs were more often affected with worms than older sheep. He mentioned an instance where sheep and lambs had been treated with Cooper's worm tablets with good results. Mr. R. F. Richardson, in giving his experience, said that dosing sheep was rather a difficult matter and a very tedious job on farms. He recommended the use of a medicated salt lick for worms. Mr. J. Newell stated he was experimenting with bluestone dosing for worms in sheep, and promised information concerning results later.

The annual meeting was held on July 10th, when the Hon. Secretary (Mr. T. R. Gardner) read the report of the past year's work, and the officers were elected for the ensuing year.

PYGERY.

August 7th.—Present : 14 members and two visitors.

Sheep on the Farm.—" I consider that the farm is not complete without a flock of sheep," said Mr. A. R. Kammerman, in the course of a short paper under the above heading. Continuing, the speaker said they supplied the household with fresh meat and were a great assistance in keeping the land free from weeds, and helped in the consolidation of the soil. For their district he favored a flock of ration sheep and a few ewes, preferably Merinos with large-framed bodies and dense fleeces of wool. Special attention should be given to the selection of the ram, which should carry a fleece with a long-stapled wool of fine quality.

TALIA.

August 12th.—Present : six members and five visitors.

Nuts and Bolts on Machinery.—The following paper was contributed by Mr. H. Little :—" I am of the opinion that a great deal of lost time and trouble could be avoided on most farms, especially those within a few miles of the sea, by paying more attention to the bolts and nuts in machinery. Every new implement should have all the nuts on bolts screwed up tightly, and the bolt threads should then be given a coat of paint. This will preserve the thread against rust, and will prevent the nuts from working loose. If this is done it will be an easy matter to unscrew the nuts on any future occasion. This applies particularly to the plough and cultivator, which are very seldom placed under cover when not in use. I have found that after a couple of years very few bolts on a plough will unscrew without having to resort to the cold chisel and hammer to give them a start."

YEELANNA.

August 12th.—Present : 12 members and two visitors.

Care of Horses, Harness, and Machinery.—Mr. W. Wagner who, read a paper dealing with this subject, said seeing that the horse was the mainstay of the farm, it should be housed in a comfortable stable and given proper care and attention. The best feed for farm horses he considered to be oaten chaff. The trough should be close to the stable so that the animals could have a drink whenever they desired, and to keep them free from worms he suggested that each horse should be dosed twice a year with Fowler's solution. Every care should be taken to minimise and prevent sore shoulders. The collar should fit properly, and the draught of the hames should be adjusted to suit each individual horse. If a horse did get sore shoulders an alteration in the draught of the hames, or the removal of some of the stuffing from the collar, would very often give relief and effect a cure. When the young horse was first put to work, its shoulders should be washed with cold water immediately after the collar had been removed. Care of the farm machinery was also an important point, and every farm should be equipped with a weatherproof implement shed into which the machines should be put when not in use. The woodwork of the machines should be given a good coat of oil, and at the end of the season the different machines should be overhauled and made ready for the next year's work. A blacksmith's shop was necessary on every farm, and the outfitting of the shop would soon pay for itself in the time and money that would be saved. The harness should not be neglected. A coat of neatsfoot oil and mutton fat would preserve the leather and lengthen the life of the harness.

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Name of Bull.	Breed.	Pedigree.		Name of Breeder.	Where Dropped.	Date of Birth.	To Whom Leased.	Date of Expiry of Lease.
		Sire.	Dam.					
Statesman	Shorthorn	Standard of Oakdale	Mot	J. Gilroy	New South Wales	May 15, 1914	Now available	—
Waverley Emma's Heir	"	Young Dudley	Waverley Emma	F. A. Mackenzie	Bondi, N.S.W. .	July 13, 1915	Mental Hospital, Parkside	17/3/23
Karara	"	Statesman ...	Milking Shorthorn cow	J. Gilroy	New South Wales	Nov., 1916 ..	Now available	—
Sunny Bank	"	Statesman ...	Milking Shorthorn cow	J. Gilroy	"	Jan., 1917...	Now available	—
Cheeseman de Kol	Holstein.	Bolobek de Kol	Rosey 20th .	Executors late David Mitchell	Lilydale, Victoria	July 15, 1917	F. Aslin, Mount Gambier	3/11/23

Full particulars as to conditions under which bulls are supplied can be had from the Director of Agriculture, to whom inquiries should be addressed. Prospective lessees should indicate the type of bull required.

FEES, &c.—Fees, payable in advance, £7 10s. for a six months' lease. The number of cows to be served by each bull is restricted to 30 per half-year. The Department pays three-quarters of rail charges and half sea freight when necessary.

Bulls of other breeds will be secured if applications warrant.

YOUNG BULLS FOR SALE.

Young Bulls of the Breeds set out below can be procured from the Government Experimental Farm, as follow:—

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BIG SWAMP, August 3rd.—The Chairman (Mr. G. H. Bassham) drew attention to the need for a good bull for the district, and inquired what might be done in regard to getting a bull from the Government. Mention was made of the beneficial influence left on cattle in the district by a bull procured through the Bureau some four or five years ago. A discussion also took place on the prevalence of "wild onion" and other troublesome weeds.

MALTEE, August 4th.—Several matters of local interest, including the forthcoming Conference of Eyre Peninsula Branches of the Agricultural Bureau to be held at Minnipa on October 19th and 20th, and the arranging of a programme of meetings for the ensuing year were brought before the members for discussion.

McLACHLAN, August 7th.—Mr. W. E. Hawke read an interesting paper, "Some Essentials to Success on an Outback Mallee Farm," and a keen discussion followed. Other subjects of local interest were also brought before the meeting.

ROBERTS AND VERRAN, August 3rd.—Mr. S. Simmons read a paper "Haymaking," and a keen and interesting discussion followed.

SMOKY BAY, August 5th.—The Hon. Secretary (Mr. G. Lovelock) read a paper from the *Journal of Agriculture* "How we may improve our Branches," and a programme of work for the coming year was arranged. Several matters of local importance were also brought forward for discussion.

EASTERN DISTRICT

EAST OF MOUNT LOFTY RANGES).

BARMERA.

July 11th.—Present: 23 members.

The Housing and Selection of Poultry.—The following paper was read by Mr. W. Ellenby:—"The first essentials in the successful raising of poultry are a good stock of common sense, plenty of determination, little capital, and a small area of land. First and foremost beginners will do better if they follow proven practical methods rather than go in for experimenting with their own ideas in housing, feeding, &c., but so far as climatic and soil conditions are concerned, the river area, in my opinion, is most ideal district for successful poultry rearing. The ground on which the poultry yards and houses are to be placed is a very important consideration, because the health of fowls, and consequently egg production, largely depends on this factor; and once a mistake has been made, it is not easily remedied without causing considerable annoyance and expense. The situation should be chosen on a sloping sandy piece of ground, dipping towards the north or north-east in preference, thus insuring dry conditions under the feet. There are no domestic stock more subject to such diseases as catarrh, colds, and roup, than poultry. Accommodation—First, the open house, free range system, and secondly the intensive system. Of late years the free range system has been almost entirely superseded by the intensive one, that is, so far as laying pullets are concerned. On most up-to-date poultry farms a scratching shed for the laying pullets is considered an absolute necessity, without which no poultry farmer can expect eggs when the price is at the highest. The function of the scratching shed is to provide shelter from rain and cold winds in winter, and shade from the hot sun in the summer if there are no trees in the running yard under which the birds can take refuge. The main object of the shed is to keep the fowls dry and warm, and providing the floor of the house is covered with litter, an ample opportunity is afforded for their exercise, which is as essential to their health as it is to maximum egg production. Especially when one keeps heavy breeds of fowls, the question of keeping them exercised and consequently clean is a problem which has hardly been successfully solved. Close observation and scientific feeding are of utmost necessity, and probably for this reason the heavy breeds cannot hold their own against a light breed that has no tendency to accumulate superfluous fat. Water is a most necessary adjunct to a poultry plant, and is a problem that needs earnest consideration before selecting a site for the poultry farm. The most important question which to my mind in the very near future will require tackling by the poultry keepers is the marketing of the eggs and the disposal of surplus stock. The eggs, to obtain the best market prices, will need to be marketed at least twice a week. The next point is to stock the run with suitable birds. There are various ways to that end. Firstly, by securing a breeding pen from a breeder of good reputation. Secondly, by buying an incubator and purchasing the necessary numbers of eggs from a well-known breeder and hatching them yourself; and thirdly by buying day-old chicks. The two first-mentioned ways involve the use ot incubators, and unless you get a good hatch there is always a danger of nipping your enthusiasm in the bud, and the whole business will come to grief. The next question is what type of fowl to select. Do not go in for more than one breed of fowl unless you intend to be a breeder of stock instead of an egg farmer. Whatever your ultimate ambition is, it will pay you for a start to confine to one breed only. I have kept many of the well known varieties except Langshans and Dorkings, and my experience has led me to come to the conclusion that there are only three breeds of fowls that are worth bothering about, White Leghorn, Rhode Island Red, and the non-sitting Black Orpington. These three breeds are the best utility breeds, and are kept most extensively on the commercially sound poultry farms. The White Leghorn is the egg bird, whilst Rhode Island and Black Orpington can be considered as dual purpose breeds, although Sussex, Wyandotte, and Plymouth Rock also belong to the utility class. The Leghorns are very neat in appearance, they are compact in form, small, with a beautiful comb and wattles. Temperamentally they are nervous, always on the move, and consequently very hard to confine. They are non-sitters, excellent layers, but very susceptible to cold weather, hence the necessity for providing warm and dry housing accommodation in order to get winter eggs. The White Leghorn is without exception the most popular breed of poultry in Australia, and is used almost entirely on the egg farms of this country. As table birds they have no value, being hard to fatten, while the flesh is fairly dry and coarse. The best time of the year to breed White Leghorns is from the end of August until the middle of October. Earlier hatchings than September may easily fall into a moult in the following April or May, whereas later than October hatchings will be very slow in maturing and generally poor in stamina and also egg production. The non-sitting Black Orpingtons are fast winning their way into prominence. They mature early and are extremely hardy, but unfortunately the propensity to become fat in the second year is a common breed fault, and is probably the condemning factor. There are two varieties of Rhode

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Island Reds, the rose and the single comb. The single comb is the popular fancy in this country and is regarded by many prominent keepers as the best utility breed in existence." The paper concluded with a statement setting out the returns that might be expected from 100 birds and the advantages of both the light and heavy breeds of poultry.

BORRIKA.

July 25th.—Present: seven members.

Handling a Colt.—In the course of a short paper dealing with this subject, Mr. Lester said the erection of a strong stockyard, made entirely of wood, was most necessary in breaking in the colt for farm work. It was also necessary to place a strong post in the middle of the yard. The young horse should be brought into the yard and all other horses removed from his sight, so that he would be able to give all his attention to the person in the yard. The colt should be thrown and an open bridle buckled into position. Bags should also be tied on to his flanks and legs. After being allowed to rise, the colt should be left in the yard until he became quite accustomed to the flapping of the bags against his body. Next the horse should be taught to lead and drive each way with the aid of a whip and rope around the yard. The colt could then be saddled and ridden for some distance. On returning home he should be harnessed between two quiet horses, and taught to work between the chains and in the shafts of a wagon. The Hon. Secretary (Mr. J. Waters, jun.) presented the annual report, and the officers were elected for the ensuing year.

GERANIUM (Average annual rainfall, 16in. to 17in.).

August 5th—Present: 12 members.

Afforestation.—In he course of a paper dealing with this subject Mr. I. Hughes said, from personal experience, he had noted that where the mallee grew, red gums, sugar gums, and South Australian blue gums could be grown successfully. The speaker then recounted a number of experiences he had had with the planting of various kinds of trees. Continuing, he said the planting of the trees should be undertaken directly after the first autumn rains. During the following summer the soil should be kept in a loose condition and free from weeds, and the plot should be fenced off to keep the stock from damaging the trees. An interesting discussion followed.

LOXTON (Average annual rainfall, 12in. to 13in.).

Fallowing.—At a recent meeting of the above Branch Mr. P. A. H. Thiele read the following paper under the title "Well-worked fallow":—"The well-worked fallow is the pivotal factor in wheat-growing. It economises rainfall, provides a good seed bed, furnishes the conditions which enable the manure applied to become available to the growing crop, and encourages the bacteria in the soil to manufacture an important manure, and it is in the treatment of the fallow that the greatest change has been made in recent years. Twenty-five years ago the average fallow consisted of ploughing the land when convenient—in late spring—and leaving it in the sod until the next autumn, when it had set almost like concrete and was choked with dry grass and weeds. Such careless cultivation kept the farmer poor. To-day it is confidently believed that every additional stroke of the cultivator increases the yield. The explanation of this interesting result is found largely in the amount of moisture conserved. Actual tests made at different periods prove that from 2in. to 3in. of previous winter rains are stored in the soil for the needs of the newly-planted crop. That extra supply of moisture may, in a dry year, make all the difference between crop failure and a profitable return. A small amount of rain in the autumn will germinate the seed, which therefore gets a good start. The time to start fallowing varies, but in full working soils as ours, where the rainfall is only on an average of 11in. to 13in. a year, you can begin ploughing as soon as possible after seeding. I find the best treatment is to plough the land in July or August at a depth of 2½in. to 3½in. with a mouldboard or disc plough, and if the sheep are grazing on the paddocks beforehand, no valuable feed will be wasted, and a better and cleaner fallow will result. Great care should be taken not to plough right up against fences and roadways, as the light mallee soils are subject to drift. I consider 2 chains away from the fence is ample should there be a tendency to drift. It is a protection, and the land is not wasted if you peg a straight line, when fallowing, and you will not find it any great difficulty at seeding time to plough such a little strip, which if ploughed wet and then harrowed, will enable you to cut a good hay crop and thus save your tracks and fences. All loose stumps should be carted together when the ploughing is done, and the fallow immediately harrowed. After that leave it untouched until October, and then give it a cultivating with a draft tine cultivator, using 8in. shares, and have them kept sharp so that a clean cut is made, taking good care to do the cultivating in dry weather, and leave the soil nice and ridgy, this will cause less drifting. Dependence must be largely placed on harrows and sheep for weed killing. If a cultivator is necessary, it should be worked at as shallow a depth as possible. Sheep will almost eat any kind of green that grows during the summer, and they should be kept closed in on the fallow a few days every month. All noxious weeds should be cut out before they go to seed. If the farmer knows his business thoroughly, he will select the best and plumpest grain of the most virile variety of wheat, that he has proved to be most suitable for his district. I advise applying heavy dressings of superphosphates on sandy soils, and light applications on the mallee flats: 80lbs. of manure on sandhills and 50lbs. of seed per acre, but as a general rule it should be remembered the earlier the sowing the lighter the seeding, and the later the sowing the heavier the seeding. In the Australian wheat belt as a whole, especially in its drier portions, early sowing is recommended in order that fallowing may begin early. In this district I would advise April and May sowings."

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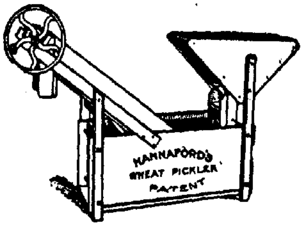

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MOOROOK.

August 3rd.—Present : six members.

The Breeding of Pigs.—The following paper was read by Mr. J. H. Buck :—"I think if people paid better attention to pig-breeding they would find the industry more profitable. At present there are far too many inferior breeds about. I prefer a pure-bred Berkshire boar, as that breed are fast growers, good doers and easily fattened. In selecting a sow for breeding, try and get a long-bodied pig, and pick from a large litter, but not from an old sow, as they generally grow weedy and go back if put too often to the same boar. I do not think there is any form of livestock more profitable than pigs, provided you have a good milk supply and grow your own feed. Each sow should be looked upon as capable of providing two litters of eight each per year, and at an average price of, say, 12s. 6d. per head when seven to eight weeks old, will bring in a handsome sum of £10 per sow. If fattened they must be ready for market in five to six months, and they should then weigh 160lbs. to 170lbs. They will then bring £2 15s. to £2 17s. 6d. per head in the local market. If there is any sow on the farm not paying, fatten her for the market or for your own use, and then place a young sow in her place. As regards fattening, keep the pigs in a small sty, and do not allow them to roam about. Keep the sty clean, and when feeding do not give too much at a time. It is better to feed them three or four times a day. They will then clean the trough and do better than if the trough is filled too full. I generally fatten the pigs with peas and milk, sometimes on Cape barley. Cape barley fattens very well, but malting barley is very slow. The grain must be crushed, or the pigs will waste too much. The best way to give the peas to pigs is to stack them alongside the sty and cut a piece down with a hay knife, and throw some into the sty. This is a very good way, as the pigs have no chance of bolting their food. They will find every pea, and the pea straw will serve as bedding. When the little pigs are about three weeks old they will usually begin to notice their mothers feed. This is a good time to make a separate pen for them with a creep hole to it, so that the little ones can get in and eat without being disturbed by their mother. Separator milk and a little crushed corn is about the best food to start little pigs on. Soaked corn will also be eaten readily, but there is nothing that is quite as satisfactory at this time to get the little ones started on as milk. When the pigs are fed this way it gives the mothers a chance to keep in good condition. When the sows get down too low in condition it will take a lot to get them up again. When the sow has a litter care must be taken not to overfeed her the first day or so, or she will lie on the young ones. Do not give too much bedding at a time, and the bedding must be short straw, so that the young pigs will not get tangled in it. After three or four days you can give them plenty of straw to keep them warm and clean, as little pigs will not do well in a damp or dirty sty ; also give them plenty of room for exercise." Mr. W. A. Palamountain said he could indorse what the writer had said regarding the size of the litters. In cases where the number was large some were usually killed or smothered in the early stages. In reply to Mr. J. F. Nicholls, the writer said he favored the pricked-eared clean-faced Berkshire to the Tamworth. The latter were subject to scalding in summer, and were not easy to keep clean in the summer unless the sties were in perfect order. Mr. E. Yeates said his experience had been that the Tamworth had always done well, and the curers were usually willing to pay a little more for that breed owing to the bacon being of a better quality. He considered the Berkshire-Tamworth cross an ideal one. In answer to questions, the writer said feeding the growing pigs with peas, wheat, and Cape barley would have the effect of rendering the bacon sweet.

MONARTO SOUTH (Average annual rainfall, 14in. to 15in.).

August 5th.—Present : 17 members and two visitors.

Post Making.—In the course of a short paper dealing with this subject Mr. H. Rayson said the first essentials in making good posts were a good saw and two axes for felling the tree. A cut about 9in. deep should be made on the leaning side of the tree, and the tree felled on a slanting cut so that the saw could be worked without any difficulty. After the tree was down it should be measured off into lengths, each measuring 5ft. 3in., and the bark should also be removed. If the log was very solid a hole 15in. deep should be bored with a 1¼in. auger. Next, a handful of powder should be placed in the hole and the fuse inserted at least 2in. into the powder. The fuse should project about 2in. outside the log to allow for ramming in the charge. After the log had been exploded in halves, it could be split up into posts with a maul and wedges. Should the timber be too tough for the latter method, it would be advisable to put in another charge. The limbs of the tree could be used for strainers or round posts.

PATA.

August 2nd.—Present: eight members and two visitors.

Breaking in a Colt.—In the course of a paper dealing with this subject, Mr. L. R. Best said he intended to deal with the colt that had never been handled when a foal. A good crushpen and substantial stockyard were most necessary for the work of breaking in the colt. After the animal had been driven into the crushpen a leather headstall should be put on, and a rope placed around the neck of the animal, the slack of the rope being run through the ring at the bottom of the headstall. The colt could then be taken out of the pen and run around the yard for a while, after which it should be taught to tie up by fastening it with a strong rope to a firm post. In the majority of cases the colt could be taught to lead by the farmer standing in front of the animal and firmly pulling on the rope, but if that did not answer the colt should be driven from behind. Next, the animal should be taken into the stall, tied up securely, and given a feed and a few hours rest. The next job was to teach the colt to drive, and that was best done by working it between two quiet horses. Two strong neckropes, one fastened to the collar of the horse on either side, should be used, and the colt then driven around for about an hour. That should be sufficient work for the first day. Next morning the colt should be groomed and harnessed and placed between the two quiet horses. The final training of the colt should consist of light but constant work, and in a couple of weeks the animal should be ready to take its place in the team. In the discussion that followed Mr. A. Mutter thought it best to teach the colt to drive by harnessing it to a log, and considered it a better plan to tie up the colt with a running noose instead of a fixed knot in the rope. Mr. Petch was of the opinion that the colt should be worked for the first few days in an open bridle.

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WILKAWATT (Average annual rainfall, 16in. to 17in.).

August 5th.—Present : seven members and visitors.

Destruction of Mallee Shoots.—Mr. W. H. Phillips, who read a short paper dealing with this subject, expressed the opinion that the best method of destroying the mallee was by continuous cropping until the shoots were destroyed. The first crop should be wheat, and if the stubble was sufficiently thick to burn, another crop of wheat should be sown. That stubble should also be burnt, and if it was not possible to make a running fire, the fire rake should be used on very hot days to scorch the remaining shoots. The third crop should be oats, and the land prepared by a light working with the skim plough or cultivator. One and a half bushels of oats to the acre, sown in April, should produce a stubble thick enough to account for most of the shoots. The land should then be in a fit condition for fallowing or grazing. If the land was grazed, it could again be burnt after the following harvest, and fallowed the next season. He was of the opinion that if the mallee lands were treated in the above manner there would not be such heavy losses from takeall.

Takeall.—In the course of a paper under the title "Personal Observations regarding the Spread of Takeall and a suggested system of working to Eradicate the Disease," the Hon. Secretary (Mr. A. B. Neville) said in the early days of the settlement of Wilkawatt, the larger portion of his block was burnt over by a scrub fire, which meant that the remaining area of the block came in for too much cropping. When the new land was sown for the first time a track about 5ft. wide was left between each variety of wheat. During the second and third years those tracks were drilled over. The third crop of wheat clearly showed the damage caused by takeall except on those places that had not been sown the first year. Oats were then grown as a third crop, and the land grazed during the fourth year. That plan worked successfully until the natural grasses made their appearance, when one could never feel certain that the land was free from takeall. His experience proved that the farmer could not rely on a crop of oats to free the land from the disease, for the barley grass acted as a host plant to the fungus and carried the disease over from one year to the next. Much had been said about the benefits to be obtained from rolling the land at seed time, but he had tried that plan without success. During the past six or seven years the grass had made very rapid growth, so much so that it had become necessary to keep sheep on his property to assist in keeping the fallow clean. Too often it was the case that when a farmer went in for sheep he became careless in the working of the land. That was a mistake, for his experience showed that so soon as the barley grass came out into ear, the sheep would not touch the plants until they had shed the seeds, which meant that there was a strong growth of barley grass to deal with during next seeding time. He had come to the conclusion that where land had been affected with takeall, the old system of bare fallow, wheat, oats, and pasture did not in every instance prove a success, so that he suggested either one of the following rotations:—First, bare fallow, wheat, pasture, and oats, to follow straight after the oat crop. That would give a period of two years in which to free the land from the fungus, although under such a system one would have to work the land twice for the oat crop, which meant that the oats would be sown late when rain held off. The second rotation—bare fallow, wheat, oats, and fallow again the fourth year. He intended to adopt the practice of fallowing a third each year, cropping a third each year with wheat, and burning off the wheat stubble, sowing the remaining third with oats, keeping a portion for crop and feeding off the rest, thereby bringing the whole of the farm under cultivation each year.

WILKAWATT (Average annual rainfall, 16in. to 17in.).

Present : four members and visitors.

The Working of Improved Mallee Land.—The following paper was read by Mr. F. R. Koch :—"The percentage of virgin land in this district to-day is so very small that it has become necessary for us to adopt better methods of farming. Having overcome the mallee shoot question to a great extent, we have our land practically clean to work, and are now able to give the land a more finished appearance after cultivation. However, we are now faced with problems that require earnest consideration, namely, (1) rotation of crops; (2) economical and systematical working; (3) application of fertilisers; (4) stock-carrying capacity; (5) general management of the farm. Rotation of crops is now imperative if we wish to secure the best results and prevent diseases from affecting our main crops. The economical and systematical working of our holdings is also another important point, for it is necessary to bear in mind the present-day high prices for practically all farming requisites; and to make the work easy and to perform a maximum amount of work in a required time, one must have a good system to be able to accomplish the task. We all know that applications of superphosphate to the land in this district are most essential if we wish to reap payable crops. Such a fertiliser is never lost to the soil, for that portion which is not required by the growing crop will benefit the grazing the next year, or the following season's crop. In my opinion nothing less than 90lbs. per acre should be sown. The fullest stock-carrying capacity of the farm can only be obtained by the subdivision of the farm into small or convenient sized paddocks, close attention to the rotation crops, and the conservation of fodder for the lean times of the year. Fallowing in our district is practically essential, for we do not have an over-abundance of rain, and by means of early fallowing we conserve the soil moisture and help to overcome the shortage of rain. The general management of our farms calls for better management if we are to compete with the outer world, and it behoves every farmer to understand his responsibilities and to meet his obligations."

BARMERA, August 29th.—The Manager of the Berri Experimental Orchard (Mr. C. G. Savage) attended the meeting and delivered an address, "Pruning Young Trees and Vines."

BERRI, August 8th.—Mr. L. A. Bills read an instructive paper, "Bookkeeping: with special bearing on Fruitgrowing," and an interesting discussion followed.

BLOCK E, August 8th.—Mr. Kidd, of the Renmark Irrigation Trust, attended the meeting and explained the roster for the coming irrigation season.

BORRIKA, August 11th.—At the invitation of the Branch the Instructor for Mallee Lands (Mr. C. P. Hodge) attended the meeting and delivered an address, "The Working of a Mallee Farm."

BRINKLEY, August 5th.—The Hon. Secretary (Mr. L. W. Rust) gave an interesting account of the work and lectures delivered at the Winter School for Farmers recently held at Roseworthy Agricultural College.

HALIDON, August 9th.—The Instructor for Mallee Lands (Mr. C. P. Hodge) attended the meeting and delivered an address, "General Farming Practices in the Mallee."

LONE GUM AND MONASH, August 2nd.—Mr. W. J. Spafford (Superintendent of Experimental Works) attended the meeting and delivered an address on "Manures" to 70 members and visitors. A further meeting was held on August 16th, when the manager of the Berri Distillery (Mr. Rump) spoke on the "Doradilla Question."

MARAMA, August 10th.—The first meeting of the above Branch was held on August 10th, when Mr. F. C. Richards, of the Department of Agriculture, attended and delivered an address, "The Work of the Agricultural Bureau."

MOOROOK, August 24th.—Mr. W. L. Muspratt (Irrigation Instructor and Inspector) visited the Branch and delivered an address on the subject "Seepage."

PARUNA, August 7th.—Mr. F. A. Hondon read a paper dealing with the subject "A Suitable Size for a Mallee Farm," and an interesting discussion followed.

PARILLA, August 4th.—The Instructor for Mallee Lands (Mr. C. P. Hodge) attended the meeting and delivered an address, "General Farming Practices in the Mallee,"

POMPOOTA, July 26th.—The Assistant Dairy Expert (Mr. H. J. Apps) attended the meeting and delivered an address "Dairying and Breeds of Dairy Cattle." Mr. F. C. Richards, of the Department of Agriculture, was also present, and spoke on "The Work of the Agricultural Bureau."

POMPOOTA, August 9th.—Mr. C. H. Beaumont (Orchard Instructor and Inspector for Southern Districts) attended the meeting and delivered an address, "Work in the Orchard."

WANBI, August 16th.—After having been in recess for some time, the meeting was devoted to a discussion on the best methods to adopt to awaken fresh interest in the Branch. A programme of meetings was also arranged.

WINKIE, August 7th.—Mr. H. G. Mortimer attended the meeting and delivered an address, "Common Ailments of Horses and Cows."

WYNARKA, August 5th.—Mr. E. Mewett, jun., outlined his experiences at the 1922 Winter School for Farmers, and matters in connection with the forthcoming Conference of Murray Lands Branches were brought before the meeting.

YOUNGHUSBAND, August 8th.—The monthly meeting of the Branch was held at the homestead of Messrs. Macrow Bros., when the Dairy Assistant (Mr. C. N. Finnis) delivered a lecture on "Milk and Cream Testing." A practical demonstration of milking with the machine was also given by Messrs. Macrow Bros.

SOUTH AND HILLS DISTRICT.

BLACKHEATH (Average annual rainfall, 27in. to 29in.).

August 4th.—Present: nine members.

Shelter for Stock.—The following paper was read by Mr. E. T. Pym:—"One of the most important items on a farm is the provision of shelter for the stock, especially if the land is open to the bleak weather of winter and hot winds of summer. I suggest the planting of *Pinus insignus* in two rows, with the trees about 6ft. to 8ft. apart, as this will enable the trees to grow to their full size. These pines grow out very close to the ground, thereby making ample shelter for stock during the bleak days and nights of winter. Sugar gums can be planted as well as the pines, the former supply a better summer shade than the pines, and allow the light breeze on a hot day to pass through under the shade. I recommend these trees because they are hardy and suitably adapted to this climate and district. The plantation should run in a north-westerly and south-easterly direction, with a wing at each end. The plantation should, if possible, be planted in an open paddock, so that the animals can seek shelter from any side. I also suggest the planting of say two or three pines or sugar gums in the V corners of the paddocks. These are out of the way of ploughing, and do not provide very much feed. It will also prevent the stock from crushing one another in the sharp corners, which generally results in a broken leg or some other injury. When the trees grow a certain height I suggest topping them to keep them from making too high a growth. The plantation should be protected with a good strong stock-proof fence, some distance from the edge of the trees, because in summer, when green feed is scarce the stock are apt to eat them. As the trees spoken of are obtainable around this district there should be very little time lost in procuring them, and in years to come the waste from such plantations would prove very useful for firewood and other purposes. Many farmers will think the land will be robbed of a certain amount of moisture, but on the other hand a farmer cannot easily value the benefit the stock are receiving. This, I think, will more than compensate any loss of grass or crop he might sustain."

GUMERACHA (Average annual rainfall, 33·30in.).

July 10th.—Present: six members.

How to Prevent the Rural Exodus.—Mr. H. V. Cornish, who read a paper dealing with this subject, expressed the opinion that one reason for so many of the young people leaving the country districts was because of the higher wages and shorter hours that could be obtained in the city, whilst another reason was the craving for pleasure and enjoyment on the part of the young folk. Such things should not be, and an earnest endeavor on the part of the parents should be made early in the life of the children to prevent such a happening. First of all the home life should be made attractive; music of some description should be provided, and the reading of good books and social home gatherings encouraged. As the youth approached manhood he should be encouraged to take an interest in the work of the farm, by occasionally giving him responsible duties and allowing him to buy and sell produce. A weekly allowance should be made to the young man, and later he should receive wages, so that he would feel that he was being treated on an equal footing with the man who went out to work on other farms. The speaker suggested giving a small plot of land to the young man to work for himself, a few trees to cultivate and prune, or he could be allotted a share of the wheat crop. Mr. Cornish considered that an appeal could be made to young rural workers by giving them a bonus on the income of the farm for the year, but he realised that it was not possible to entirely prevent some of the young people from going to the city, because those who had a natural liking for engineering, office work, &c., would never be satisfied with life on the farm.

Manuring.—At a further meeting held on August 7th the Hon. Secretary (Mr. G. R. Randell) read a paper dealing with this subject, in which he first referred to the importance of nitrogen in the soil for the growth of plant life. Nitrogen, he said, was deficient in the majority of soils, and was usually applied by a nitrogenous manure or the ploughing in of some form of leguminous crop, such as peas, vetches, clover, &c. In the Gumeracha district the green manuring of the land greatly assisted towards loosening the soil. A crop of peas or vetches grown for that purpose should be sown in May or June, at the rate of about 1½bush. to 2bush. of vetches, and from 2bush. to 3bush. of peas to the acre. Either of those crops should be ready for ploughing under during October or November. Phosphoric acid was also essential to plant life, and was usually supplied by the application of guano super., bone dust, or mineral super. He had tried both guano and mineral super. for potatoes, but no increase in the yields of the crop had been noticed. An interesting discussion followed the reading of both papers.

HARTLEY (Average annual rainfall, 15in. to 16in.).

August 11th.—Present: 18 members and many visitors.

Annual Homestead Meeting.—The fifteenth annual homestead meeting in connection with the Hartley Branch of the Agricultural Bureau was held on August 11th, at the residence of Mr. J. M. Hudd, Bletchley. During the afternoon a pruning demonstration was given by Mr. C. H. Beaumont (Orchard Inspector and Instructor) for the formation and culture of young trees; also a shearing demonstration under the instruction of Mr. D. Clark. In spite of the very boisterous weather 65 guests sat down to a sumptuous dinner provided by the host and hostess (Mr. and Mrs. J. M. Hudd), which was presided over by Mr. H. H. Cross. Among those present were the Hon. G. R. Laffer and Mr. H. S. Hudd, M.'sP., and Messrs. C. H. Beaumont, G. G. Nicholls, H. J. Finnis (Secretary Advisory Board), and delegates from Mount Barker, Strathalbyn, Brinkley, and Milang. The following toasts were honored:—"The King," by the Chairman; "The State" (Mr. H. S. Hudd), responded to by Hon. G. R. Laffer; "Agricultural Bureau" (Mr. Crawford), responded to by Mr. F. E. Smith; "The Visitors" (Mr. J. Stanton), responded to by Mr. S. Bottrill; "The Producers" (Mr. C. M. Hudd), responded to by Mr. J. Yelland; "Mrs. W. Brook, sen." (Mr. F. Pope): "Host and Hostess" (Mr. A. J. Follett), responded to by Mr. J. M. Hudd. The annual report was read by the Secretary (Mr. W. B. Hudd), and addresses were given by Messrs. H. J. Finnis and G. G. Nicholls. Games, music, &c., terminated a very enjoyable evening.

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HARTLEY (Average annual rainfall, 15in. to 16in.).

Present : 17 members.

Poultry on the Farm.—The following paper was read by Mr. C. S. Hassam :—" On the ordinary farm in the country poultry are considered a necessity by the thrifty housewife, while, in many instances, they are treated as a tolerable nuisance by the menfolk, especially when they get into the horses feed boxes. Looking at the matter as a side line on the farm, much better results would be obtained if the farmers treated the poultry in a proper business light. The farmer can raise chickens more cheaply than anyone else, and if he gave the same studied attention to the yearly mating and breeding of his fowls as he does to other stock the results would, I am sure, surprise him. My experience with poultry goes to prove that the White Leghorn cannot be beaten for the supply of eggs."

KANGARILLA.

August 4th.—Present : 19 members and three visitors.

Hints on Beekeeping.—The following paper was read by Mr. F. A. Baker : —" To those who would like to keep a few hives, cleanliness in all things in connection with the bees is most essential. The bees should be placed in a well-sheltered site, where they will receive the benefit of the early morning sun. Place the hives with the entrance facing northwards, with the entrance end slightly lower than the back end, as this will assist the bees in keeping the floor board clean. A good cover and thick floor board free from cracks or joints are most necessary. To become a successful apiarist, one should first of all purchase one or two books on beekeeping, to learn as much as possible about the work in the way of plant, tools, &c. August is the month in which to make preparations for the swarming season. Make up all new hives, paint, sun, and air them well, but do not paint them on the inside as the bees do not like the smell of the paint. In hiving young bees, shake them into an old weather-worn hive with the necessary frames in it, and place them on the stand after sunset. Leave them in this box a few days until they have become thoroughly settled, say about eight days, and then they can be transferred into the new hive. Do not stand the hives right on the earth if there are any ants in the yard. Raise the hive by placing it on four brick bats, one at each corner, and if the hive has no alighting board, place one brick at the entrance, not quite touching the hive ; about ⅛in. away will be enough to cut off the ants, and at the same time allow the bees to span and make the entrance without falling on the ground. In placing the foundation comb in the frames, the full sheet is the best ; but this is not absolutely necessary, as a farmer with a few hives will find that one sheet cut into three parts will take three full sheets of foundation comb. This will furnish a hive of nine frames, that is, a single hive, or six sheets for a two-storey hive. Always try to get the bees to draw out a few new combs each season, so as to get new combs in the centre of the brood each year. This will keep the bees healthy, and also have a good influence on the queen in keeping her in the centre of the hive in winter, or when the brood is at its smallest. Endeavor to get the honey out of the hives between 9 a.m. and 2 p.m. Do not leave any broken combs or loose honey about the bees at the time of taking the honey, as this will sometimes cause robbing to take place. Never at any time leave any empty hives in the yard that have frames with fully drawn combs in them, as this will encourage the wax moth. Should the bees at any time require feeding, do not place honey in the hives except it be in frames, and then only do so the last thing in the evening, so that all loose honey on the frames will be cleaned off by the morning. Under the extreme circumstances, such as when the bees are right out of honey, and in a starving condition, and should there come a wet cold snap and the bees are unable to fly for several days at a time, warm honey can be fed at night in a feeder immediately above the cluster of bees. I have found it best to feed in a trough under cover, placed at some distance from the bees, say 50yds. in the opposite direction to the honey house. Should you have neighbors at a lesser distance than a mile, do the feeding after sunset, so that your bees will get first ' pull ' in the early morning. If you have neighbors close at hand, and it becomes necessary for you to feed the bees, it is a good plan to move them a quarter of a mile distant from any other bees, and then feed them in the open trough. Feed heavily and continuously until the natural flow is established. Always see that the bees go into winter well stocked with honey and pollen. Pollen is the principal food for young bees, and without it the bees will not raise broods, and even in early spring, when the bees are working on blue gum foliage, they should be carefully watched to see that there is plenty of pollen. In this particular district there is often a scarcity of pollen at this

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Subject.	Bulletin No.
ANDREW, **H. W., Botanical Assistant—**	
Seeds Imported from Abroad into S.A.	109
BEAUMONT, **Chas. H.—**	
Orchards and Orchard Work	143
BULL, L. B., D.V.Sc.—	
Forage Poisoning	167
COLEBATCH, W. J., B.Sc. (Agric.), M.R.C.V.S.—	
Barrenness in Livestock.................	XLVIII.
Conversion of Fodder Crops into Silage ..	LXVII.
Dietetic Value of Cereals and their Products	155
Field Pease, Production and Utilisation of	140
Pigs, General Management and Breeding of	141
Roseworthy Agricultural College—Harvest Report—	
1914-15	90
1916-17	114
1918-19	123
1919-20	136
HODGE, C. P., Instructor for Mallee Lands—	
Hints for Settlers Starting in Mallee Lands	—
LOXTON, C. A., B.V.Sc., Government Veterinary Surgeon—	
Hints on the Diagnosis of Disease in Farm Animals	133
PAULL, J., Field Engineer—	
Reinforced Concrete Silos................	146
PERKINS, **Prof. ARTHUR J., Director of Agriculture—**	
Agricultural Education in South Australia .	154
Ayers and Hanson, Possible Improvements in Farming Practices of Hundreds of ...	95
Black Japanese Millet on Reclaimed Murray Swamps	XLII.
Dairy Cattle, Suggested Rations for	XXI.
Ensilage, Use and Making	146
Farm Horses, Suggested Rations for	XXII.
Farm Livestock, How to Lay Foundations of Good Strains	XXXI.
Forage Crops in the South-East	92
Livestock, Duties of Farmers as Rearers of for the State.........................	116
Manures in their Relation to Present Day S.A. Farming	148
Manuring of South-Eastern Pasture Lands	122
National Aspects of Guaranteed Minimum Price for Wheat	121
Olive Groves, Scope for Extension in S.A...	111
Phosphatic Manures....................	87
Pigs, Feeding Tests with	163
Pigs, A Neglected Source of National Wealth	164
Possibilities of Increased Production in our Rural Industries	126
Rise and Progress of the Fruitgrowing Areas of the Murray	168
Roseworthy Agricultural College—	
Harvest Report, 1910	63
Harvest Report, 1912-13................	78
Harvest Report, 1913-14	83
Fourth Report, Permanent Experimental Field, 1909-10	65
Fifth Report, Permanent Experimental Field, 1905-14	89
Rotation of Crops, 1916	100
Rotation of Crops, 1919	125
Training and Research..................	115
PLACE, F. E., B.V.Sc., M.R.C.V.S., M.R.A.S.E.—	
Bloodworms	LXV.
Bot Flies and Bots	
Cow, Some Common Troubles of the	
Diet Deficiency and Disease in Livestock..	
General Management of Draught Horses on the Average Farm, Notes on........	132
Horse, The, General Management, etc.....	138
Medicine Shelf, The	85
Milk Fever or Drop after Calving	XXXIII
Some Sheep Worms	LIV.
QUINN, GEO., Horticultural Instructor, &c —	
Apple Packing	98
Codlin Moth, The	XIV
Fruit Drying for Beginners	31
Fruit Trees and Vines, Remedies for Diseases of	70
Olive Growing, Notes on	145
Orange in South Australia	107
Select List of Fruit Trees, &c.	91
Table Grapes	LIII.
SPAFFORD, W. J., Superintendent Experimental Work—	
Ensilage, its Manufacture and Use	128
Experimental Farm Harvest Reports—	
1916-17	119
1917-18	124
1918-19	129
1919-20	153
1920-21	157
Fertilizers for the Home Garden..........	160
Fodder Crops on Reclaimed Swamp Lands	127
Pig Raising where Lucerne can be Successfully Grown in S.A.	149
Soils....................................	162
Wheat Crops—Some Diseases of, and their Treatment	110
Wheats, Cross Fertilization of	XLIII.
GENERAL AND REPRINTS—	
Beekeeping Notes—Foul Brood : Its Symptoms and Treatment	XIII.
Berri Experimental Orchard, Second Report	147
Dry Farming Conference, 1911, Report ..	L.
Fruit Flies	24
Fruit Nomenclature	XLIX
Congress, Agricultural Bureau, 1911	66
Congress, Agricultural Bureau, 1914	86
Herd Testing Societies, Regulations	137
Hints to New Settlers on Irrigation Areas..	99
Milking of Cows	VI.
Ostrich, The	XXX.
Plums and Prunes	XV
Sheep Tick and Sheep Louse	84
Spaying of Cows..	IV
Tobacco, Growing and Curing	159
CONFERENCE REPORTS—	
Eyre's Peninsula District, 1920	158
Hills District, 1920	152
Lower Northern District, 1920	142
Lower Northern District, 1921	156
Mid-Northern District, 1920	134
Mid-Northern District, 1921	161
Murray Lands District, 1920	151
River Murray District, 1920	144
River Murray District	165
South-Eastern District, 1920	135

THE AGRICULTURAL BUREAU.—Particulars of this Organization, of which every farmer should be a member, can be had on application to the Department.

season of the year and until the wattles commence to bloom. About the end of August go through all the bees, examine every brood nest, cut out all burred combs, clean the inside of the hives, sweep the floor boards, place all frames in the brood chambers at a proper distance apart, and leave just enough space to allow the bees to move freely between the frames. If there is a little extra space between the outside frame and the wall of the hive, so much the better. In this operation carefully note the condition of each hive as to its brood, for at this season of the year the queens should all have started brooding. If you find this is not so, and the hive has plenty of honey and pollen in it, mark such hive as wanting special care, and at the same time place a frame of well advanced brood from one of the strong hives in it, and in the course of a week open the hive again, and if the queen has not started to lay eggs in the adjoining frames to the one you have put in, it can be taken that she is not in sound condition. If she is old or small, replace her with a young queen as soon as possible. For the farmer who only keeps a few hives, and the person who only keeps bees as a side line, one will not find it profitable to raise queens in the ordinary way, as it would take up too much time. The person who has not too much time to spare at his bees, will find it better to use a frame of newly-laid eggs from the best hive he has, and place this in the centre of the brood chamber of the hive. If he wishes to 're-queen.' it will be necessary for him to kill the old queen a day or two previous to placing the frame of eggs in the hive. By leaving the bees queenless for a day they will be almost certain to start on the new frame right away. It should be borne in mind in raising queens in this way that there must be many eggs of not more than eight hours old in the frame. In the course of a week examine the frame, and if no queen cells are drawn replace with another such frame, but should the first frame have the queen cell drawn, and you can see the young grub, close it down and leave the hive for about 28 days. By this time the queen should have hatched and perhaps have started to lay. *Handling bees in cold weather.*—Care should be taken lest the brood get chilled. Do not expose the brood frames to cold winds more than is absolutely necessary. Keep all grass and rubbish cleared from the bee yard, so as to safeguard against fire. Those who keep bees should acquire a good knowledge of the flowering habit of the different kinds of timber in their particular neighborhood, so as to know just about the time each will bloom. This is most essential, for by knowing just the time each flow of honey is coming on you know just when to have the bees ready to make the best possible use of each flow of honey while it lasts; for it is very obvious that to get the best out of a flow of honey, you must have the bees just as fit as they can be when the flow of honey commences. To do this it is often necessary to feed the bees where they are stationary. By feeding well you will get every hive full of brood. This should be about 21 days before you expect the flow of honey to start, as it takes about 21 days from the time the brood is capped until they are ready to fly. It is a good plan to reserve all dark and 'off flavored' honey to feed to the bees in times of drought, and also at such times as the bees require feeding, in order to have them at their best, just when a honey flow is coming along. When feeding bees, always keep them active by placing some fresh honey each day in the feed trough, and keep them well fed right on until the new honey flow commences. So soon as the bees cease to feed from the trough, you can be sure they are getting plenty from the trees or some other source. To those who have had bees from time to time and generally lose most of them, the loss in most cases in this particular neighborhood is the outcome of neglect on the part of those responsible for their care." In the discussion that followed Mr. Baker spoke on "foul brood," and said that the best cure was to burn the bees and hives so affected, to prevent any further spread of the disease. He advised members not to mistake "chilled brood" for "foul brood." The wax grub and dark honey came under notice, and Mr. Baker said that dark honey came from the honeysuckle, and was not so good as that from other flowers. That honey could be kept for feeding the bees in time of shortage. Mr. Morphett tabled some fine Washington Navel oranges.

MOUNT BARKER (Average annual rainfall, 30·93in.).

August 2nd.—Present: 38 members.

REARING CALVES.—The following paper was read by Mr. L. Cowan, B.S. (Agric.):—"It may not pay the ordinary dairyman to rear his bull calves, but at least it pays to rear the heifers from the best cows, especially if a well-bred bull of any recognised milking breed is used in the herd. It is a risky business buying cows in the sale ring, they may or may not be good milkers, and further than that, they may not be healthy, and perhaps affect the health of your whole herd. By rearing your own heifer calves you have a goo idea of what sort of milkers they are likely to be, and you run very little risk of disease. Before going further I would like to emphasise the fact that it does not pay to turn a dry cow out in a poor paddock to let her scratch for herself until calving time. The calf she is carrying is a big drain on her vitality, and it pays to feed her a little extra at this time, as a cow that is allowed to get low in condition before calving will not milk as well as a cow that has been kept in good condition right up till calving time. There are several different methods of treating the new-born calf. Some prefer to take the calf away from the mother before it has had time to suck. Others leave the calf with the cow for 24 hours, and others again prefer to leave the calf for three or four days. Whichever method you adopt you must be certain that the calf gets the first milk from the cow. This is the colostrum, commonly called 'beastings,' and is Nature's own provision for the new-born calf. It is especially rich in growth-producing ingredients, and further has laxative properties which are beneficial to the calf. It takes a little patience to teach the calves to drink from the bucket, but by giving them the finger for the first time or two they soon learn to drink by themselves. I prefer to feed each calf separately from a small bucket to feeding several at one trough, then each calf gets its fair share. Overfeeding is next to using dirty buckets, the chief cause of scours. Calves do better when running in small well-sheltered paddocks than in closed-in sheds. They seem to require plenty of clean fresh green picking, and they thrive on it; but when kept in small, insanitary yards, calves very often contract scours. Whole milk should be fed to calves for the first three weeks, then gradually wean them on to separated milk till about four weeks, when they should receive no whole milk. Give a little boiled linseed meal in the skim milk, at first about a teaspoonful, increasing in a few days up to a tablespoonful. Substitutes for linseed meal such as cod oil, pollard, or brown sugar, and also prepared calf foods may be used. Give the calf access to green picking and good water from the beginning. In addition,

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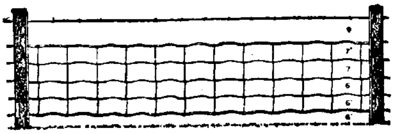

Fig. 7.—5-line Special Cyclone Spring Coil Fence.

The Cyclone Special Sheep Fence, here illustrated, is recognised as the best fence for cross-bred sheep. The top and bottom lines are No. 9 gauge heavily galvanized steel wire; intermediate line wires, No. 11 gauge, with cross ties of No. 13 gauge every 12 inches, immovably fixed to the line wires. You need fewer posts with a Cyclone Spring Coil Fence, and it is very easily erected.

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a little crushed oats or lucerne hay. Where the calves have to be raised entirely without skim milk, pollard and linseed gruel is a good substitute. Give the mother's milk for the first three weeks, then gradually substitute linseed and pollard gruel by mixing with the whole milk in increasing quantities, starting with one teaspoonful up to the full quantity, at the same time substituting warm water for the milk, till at the end of the fifth week milk is entirely discontinued. The full allowance for each meal per calf is ½ pint linseed meal and half as much pollard. To make the gruel:—Bring the mixed meals to the boil in slightly salted water 12 hours before feeding, and allow it to cool down and soak till feeding time. Do not leave the gruel over until next day, or it will probably go sour. Calves' ailments are usually due to digestive troubles, and it is well not to give too violent a change of diet. Changes should be introduced gradually, so that the animal may accustom itself to the alteration."

PORT ELLIOT (Average annual rainfall, 20 33in.).

August 19th.—Present: nine members.

How and When to Spray.—In the course of a paper dealing with this subject, Mr. E. Hargreaves said for the spraying of trees affected with scab, shothole, American blight, and curl leaf, many gardeners used Bordeaux mixture in proportions of 6lbs. bluestone, 5lbs. of quicklime, and 50galls. of water, but he had found that Burgundy mixture—5lbs. of bluestone, 5lbs. of washing soda, and 50galls. of soft water—to be just as effective, and it did not choke the spray nozzle. A simple way to test the mixture was to put a piece of bright steel into the solution. If the steel dried with a bright surface, the ingredients used in the spray were well balanced, but if the steel on being removed showed a rusty appearance when dry, more lime or washing soda should be added. American blight could be easily combated if the trees were sprayed before they came out in leaf with 1gall. of red oil to 50galls. of water. The codlin moth was responsible for considerable losses of fruit, and to adopt effective measures the three following points should always be kept in mind:—(1) Use the proper mixtures to deal with the pest, (2) spray as soon as the flower petals commence to fall, and (3) use a thoroughly efficient spraying outfit. To obtain success in dealing with the codlin moth, it was most important that every limb, leaf, and fruit on the tree should be covered with the spraying solution. He made a practice of using the following solution:—3lbs. arsenate of lead in 100galls. of water. Care should always be taken to weigh the arsenate when preparing the solution. Old and empty cases should never be taken into the orchard before they had been immersed in boiling water for a few minutes for sterilization. Much of the success in spraying the trees depended on the orchardist having a knowledge of the life history of the various pests, in order that he would know the correct stage at which to treat the trees. The fruit storage house should also be kept clean. About the middle of September all the woodwork and cases should be scalded and the walls given a good coat of whitewash.

RAPID BAY.

August 5th.—Present: 15 members.

Lucerne Cultivation under Irrigation.—Mr. A. J. Gundy, who contributed a paper dealing with this subject, said lucerne seed should be sown in September, first because a good germination would be secured, and secondly because the lucerne flea, which was so destructive to the young plants, had by that time practically disappeared. The land on which it was intended to sow the crop should be fallowed at least 12 months before the seed was sown; it should be ploughed during August and worked frequently during the following two months. If the land was at all uneven, it should be graded, to ensure an even distribution of water over the whole of the plot. It was most important that a wide finishing furrow should not be left in the middle of the paddock at the completion of the ploughing, as that would prevent an even distribution of the water. He therefore suggested that a single or double furrow set plough should be used and the work started from the centre of the paddock, so that the finishing furrows would be on the outside of the field. The ridge thrown up in the centre by the first furrow could easily be levelled off by the cultivator. After the land had been cultivated for a couple of months, a crop of maize could be sown during October if one did not care to allow the paddock to remain idle for the whole of the 12 months. The maize should be ready for feed by the end of January, but the plants should be pulled out in order to free the land from the roots. From the experience that he had had in growing lucerne he considered that 12lbs. of seed should be sown to the acre. Prior to sowing, the land should be worked with a roller and then the harrows. The drill should be set to sow one bag of super. to the acre. The super should be emptied out on to a tarpaulin, and the seed mixed with the fertiliser and then placed in the seedbox of the drill. The seed should be dropped on the surface of the land, and the roller then run over the plot to press the seeds into the soil. The first cut should be made when the young plants were about 9in. high, and the second and subsequent cuttings could be taken when the plants were just showing signs of flowering. During the second year he recommended the practice of cutting and stacking the lucerne, or else making it into silage. Referring to the manuring of the land, the speaker said he had tried both superphosphate and farmyard manure, but had obtained the best results from the latter. He suggested that the manure should be spread over the plot directly after the first cut had been taken, about 25 drayloads to the acre being required. Where one had an abundant supply of water on hand he considered that watering with the aid of fluming was the best and most economical method to adopt. The crop should be watered within a few days after cutting, and it was most necessary that care should be taken when watering a young crop not to allow the water to run over the land too quickly, as that would cause gutters to form in the paddock. An interesting discussion followed the reading of the paper. [Mixing superphosphate and lucerne seed for sowing is a practice attended by considerable risk, unless the soil is in ideal condition for germinating seeds.—ED.]

BALHANNAH, August 4th.—Mr. E. W. Mattner gave an interesting report of the Winter School for Farmers held at Roseworthy Agricultural College, and the delegates were appointed to the 1922 Annual Congress.

CHERRY GARDENS, August 8th.—Mr. D. M. Ricks, who attended the 1922 Short Course for Farmers at Roseworthy Agricultural College, gave an interesting report of the proceedings of the Winter School.

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CLARENDON.—A meeting of the above Branch was held on August 7th, when matters in connection with the forthcoming Hills Conference were discussed. A further meeting was held on the 21st of the month, when Mr. Harper gave an interesting account of the proceedings of the 1922 Short Course for Farmers at the Roseworthy Agricultural College.

LONGWOOD, August 5th.—The monthly meeting of the Branch was held at Mr. R. H. A. Lewis' homestead when an interesting afternoon was spent in discussing the various methods of pruning and cultivation. Afternoon tea was provided by Mrs. Lewis.

STRATHALBYN.—The annual meeting of above Branch was held on June 27th. The Wool Instructor of the School of Mines (Mr. A. H. Codrington) attended and delivered a lecture, " The Classification of Clips for Market." The Secretary of the Advisory Board (Mr. H. J. Finnis) was also present and delivered an address, "The Work of the Agricultural Bureau.

A meeting was also held during May, when the following papers were contributed :— " A Word for the Horse," by Mr. S. Bottrill, and " Pea Growing," by Mr. E. Saunders.

SOUTH-EAST DISTRICT.

GLENCOE (Average annual rainfall, 33·84in.).

August 3rd.—Present: 11 members.

Pig Raising and Feeding.—Mr. J. Binney, who read a paper on this subject, said the opinion that the pig was a dirty animal, and that any sort of an enclosure was good enough for a sty, was very quickly disappearing. Clean and well drained sties were two of the first points that should be considered by those who intended raising pigs for profit. During the winter months a liberal supply of dry litter should be provided in the sties for the animals, and it should be replenished when it became wet or soiled. The soiled litter could be thrown into a heap to rot and then carted on to the fields for fertiliser. His experience had shown that the best trough to use was either the long narrow or short narrow feeding vessel. The best plan was to have two troughs so that each animal would have a chance of securing a fair share of the food. The success of the venture would depend very largely on the methods of feeding that were adopted, good food containing the proper constituents required for building up bone and tissue were most essential. For the growing pig, the speaker considered it a mistake to pen up the animal immediately after it had been weaned. A good yard or small paddock should be provided for the animals in order to provide room for exercise. The feeds should be liberal without any being wasted. It had been proved that barley was an ideal grain food for pigs, and it was not advisable to always soak the grain before feeding. Good results could be obtained by occasionally changing the feed to either whole, dry, or soaked grain. Combined with the ordinary mixture of whey and barley, the writer considered that root crops were invaluable to the pig raiser. Mangolds were a root crop that could be grown very easily; they yielded good returns and always seemed to be palatable to the pigs. Regarding the best breed of pigs, Mr. Binney expressed a preference for the Middle York boar crossed with a Berkshire sow. They matured early and were exceptionally good " doers." One particular point that every man engaged in pig raising should bear in mind was to use a well bred boar that would stamp his qualifications of quality on his offspring. An interesting discussion followed and several questions were brought forward

KEITH (Average annual rainfall, 19·20in.).

August 19th.—Present: eight members and visitors.

Beginnings on a One-man Farm.—The following paper was read by Mr. A. J. Densley :—" I have in mind chiefly what I would call the ' One-man farm.' That is the small holding which is capable of being worked by one man, without the necessity for employing labor, except, perhaps, just casually. In this district such a farm might consist of about 1,000 acres. All will agree that the very first consideration is water. The homestead buildings must have water close by, and it would be foolish in this locality to build and then look for water. Only those who have experienced the drudgery of water-carting realise to the full how very essential is a handy and plentiful water supply. A central site will appeal to most as being the best for the homestead, except in cases where the contour of the land make this choice unwise. In building the house, bear in mind that it is to be a home, not just a place in which to eat and sleep. I maintain that the farmer, who probably works harder than anyone else, is fully entitled to at least as much comfort as the dweller in the suburbs. I feel sure that one of the reasons of the trend citywards from the country is the lack of ordinary comforts and conveniences, which is far too often apparent in country houses. Remember that the greater part of the lives of your women folk are spent in the house, so make it as pleasant and convenient as possible. Often these conveniences are more a matter of forethought than of money. For example, it is a matter of very small expense to lay water on to the kitchen and the washtubs. Then, too, your children, as well as yourself, will be happier if you have fashioned your home wisely and with due consideration for their needs. Plant ornamental trees for a windbreak, and in this district where fruit grows so well, no farm should be without its orchard. Be sure to securely fence the orchard and garden patch at the outset to protect it from the farm stock, and also set aside a special plot for the kitchen garden. Provide for a flower garden, and even though quite small the growing of flowers for home decoration will help to relieve your mind from the worries of the farm and make the place look more like a home. The most important of the outbuildings is the stable, and if the land be level I favor placing them in a westerly or south-westerly direction from the house, providing that position does not happen to be on the side from which the house is approached. Erect the best you can afford, and let whatever sort you build be as substantial and convenient as possible. It is a good plan to have the chaffhouse, cutter, and engine under the one roof with the stables ; but I would not have any other buildings conjoined. Put up a strong small yard at the stables, and have water available in it. For mangers I prefer a continuous iron trough that is big and deep, with divisions at

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about every two stalls. The chaffhouse door should be about the centre of the race which runs along behind the mangers. In a width of 20ft., 4ft. would be occupied by this passage way, 2ft. or more by the mangers, and the balance for the horses. Stables should face eastwards. Do not lean the fowlhouses up against some other building, but let them be separate, of simple construction, and built so that they may be easily cleaned; also make sure that your fowls sleep in the house provided for that purpose. Presuming that the farmer makes sheep and cereal growing his two chief lines, I consider poultry to be the best side line for the one man farm. I would favor keeping the majority of the poultry in netted runs, as then they are not a nuisance in the garden, mangers, or implement sheds, and I find that fowls shut up and given proper attention lay best. About 100 hens would be a suitable number to keep. Start off with a pure strain of good repute, for the little extra cost entailed will more than repay you. Of course, no farm would be complete without its cow; but I feel that two would be enough to ensure enough of the good things they produce, and as they entail so much work, a man who is doing most of his own work would be foolish to keep more unless he has a guarantee that butter will always be 2s. or more per pound. A good weatherproof implement shed is most essential, as implements are far too dear to be left to the tender mercies of the elements. Good sheep yards are another essential, and although wire netting is better than nothing, I do not think it is suitable or substantial enough. Posts and rails, or posts side by side in the ground should be much more effective. Around what I would call the homestead allotment, including all these buildings, I would have a lane, say, half a chain wide. This should make for convenience again. See to it that all these yards and buildings are so arranged as to save as many steps as possible in attending to the various things about the place. The next task is that of subdividing the holding into paddocks, and this is a matter for very much thought. First of all, provide plenty of small paddocks adjacent to the homestead, as the value and usefulness of these cannot be gainsaid. Then I think it is a good idea to have as many headlands of paddocks as near the stables as possible as this will save time in going long distances to and from work. I consider about 200 acres a good size for ordinary paddocks. It is well to arrange the paddocks so that one well will serve to water as often as possible more than two paddocks. All the fences erected should be strong and substantial, temporary fences cause annoyance and trouble. Gates should be comfortably wide enough to take the widest implement you are likely to use. Afforestation is being continually forced under one's notice these days, and perhaps a small sandy rise which you would not ordinarily cultivate can be devoted to the growing of pines."

KONGORONG.

August 3rd.—Present: 16 members.

Summer Fodders.—Mr. R. Adams, who contributed a short paper dealing with this subject, said the land intended for the summer fodder crop should be worked with the plough during February or March. Thousand-headed kale, he considered, was a good summer fodder to sow in September or October, at the rate of ¾lb. to the acre. The seed could be sown through the drill by using alternate tubes. It was not advisable to confine the growing of summer fodders to one paddock. By having several paddocks the cows could be turned from one field to another, the pasture would be kept sweet and clean, and would not be eaten out so quickly. Chou-moellier was also an excellent fodder crop and able to withstand periods of dry weather. The speaker considered that their district was too cold for Sudan grass. He also thought that it would be a good plan to shut up the grass paddocks and give the land a top dressing of super. An interesting discussion followed in which Messrs. Caine, Bannister, Morrison, and Dixon took part.

MILLICENT (Average annual rainfall, 29·25in.)

August 5th.—Present: five members.

The Value of Experiments.—In the course of a discussion on this subject Mr. J. Bell spoke in favor of experimental work being carried out by individual farmers on their farms with the assistance of the Government. He thought that an area of, say, 50 acres of crop would prove a more practical and valuable demonstration than small plots. Mr. Serle thought farmers should do more experimenting on their own holdings. He could well recollect the first time he had used fertilisers, and he would admit that he had felt extremely doubtful of any good resulting. However, the trial had quickly proved its value, and he had found that by more thorough methods of cultivation and a system of rotation his land was producing better crops each year. He recommended wheat following an oat crop, and mentioned Daphne as a good rust-resisting variety.

MOUNT GAMBIER (Average annual rainfall, 32in.)

Augtust 12th.—Present: 16 members.

Lambing Time.—The following paper was read by Mr. G. T. Gurry:—"Generally speaking if the ewes have been well cared for and carefully handled during the period of gestation, and are in good strong condition at the time of lambing, not much trouble will arise. Still, the lambing flock requires reasonable care, and a little attention given at the right time will ensure success. If possible, the flock should should be placed in a paddock convenient to the homestead, so as to be directly under the eye of the attendant, and as far as possible they should be left alone, and Nature allowed to take its course. Unnecessary or wrong interference is worse than none. If the ewe has difficulty in delivering her lamb it will be found in most cases that the trouble is caused by the forelegs being cramped back. These should be drawn forward and downward, but not right away, as it is desirable that parturition be completed unaided, as a ewe will then have less tendency to leave her offspring. On the other hand, if a ewe has been a long time in labor, and is becoming exhausted with the lamb in a similar plight, it would be necessary to relieve her at once. A ewe treated in this way will probably desert her lamb, and it might be necessary to confine her in a yard or small paddock until such time as she will care for it. This would not be long if she had a good milk flow, which promotes the maternal instinct. Ewes of the finer wool type are generally the most refractory in this respect. It will be found an advantage to draft the ewes which have dropped their lambs into another paddock, as those remaining will then be more directly under surveillance. It sometimes occurs, from some cause or another, that a ewe fails to deliver her lamb, in which case she will be carrying a decomposing fœtus. A case of this nature can be detected, perhaps in time to save the animal's life. The ewe ceases grazing, and moves in a listless moping manner. Such a case will probably be difficult to relieve, but an effort should be made. Cases of this nature are fortunately rare, and are not likley to occur unless the flock is worried by dogs or roughly handled. Regarding the young lamb, weather conditions are an important factor, as the youngsters are generally born during the roughest weather. It is really disheartening to find a number dead after a cold night. Some will also be so completely paralysed by cold as to be past recovery unless assistance is given. The young animal should be rolled in a bag or piece of old rug carried for the purpose, and be placed in warm quarters and be given a little warm milk at once. Fresh cow's milk will serve the purpose. In extreme cases where the head and tongue are swollen, a little spirits may with advantage be given first. The young animal should be kept warm, and when sufficiently recovered, returned to its mother. The chances are then that all will be well, for it is remarkable how a strong young lamb will recover with a little care. The observance of all these details may entail trouble, but with a small flock I think they can be carried out. We should not neglect to give our flocks reasonable care and attention during this critical time. In the discussion that followed Mr. A. A. Sassanowsky said a great deal of the trouble experienced during lambing was due to the ewes not having been crutched. One of the arguments in favor of late crutching was that it was noted that ewes lambing late in the season rarely had any trouble in delivering. Therefore that fact would tend to show that late breaching did not have any deleterious effect either on the ewe or the lamb. The manner in which the ewe was brought on to the board for the crutching operation was of the utmost importance. Some men made it a practice to catch the animal in the yard and drag her on to the board by the hind legs. Others made it a practice to carry the ewe on to the board, and it could be readily seen that there was far less danger of injuring the animal by that manner than if she were dragged in. Mr. D. A. Collins agreed that crutching was most essential, as if it were not done the lambs had difficulty in reaching the milk bags, and thus many of them perished owing to lack of nourishment. He had always had his ewes carried on to the board for crutching purposes. During the past season he had had 500 ewes lambing, and had not found it necessary to assist more than 20. In cases where the lambs were by Lincoln rams they were unusually large, and it was sometimes necessary to assist the ewes in delivering. In his own neighborhood foxes had been more than usually prevalent, and from reports it appeared that the same conditions existed throughout the whole of the district. The marauders terrified the ewes, and thus caused them to desert the lambs, which were either killed by the foxes or died from exposure. Once lambing commenced it was difficult to induce the foxes to take baits, as there was an abundance of food obtainable elsewhere. Mr. R. Smith agreed that the sheep should be carried and not dragged to the crutch board, and throughout the operation should be handled as carefully as possible. He had found that when a ewe was in trouble she could be assisted much more easily and expeditiously if her hind legs were tied and slung up to an overhead beam or some such support. She was thus prevented from struggling, and could easily and quickly be delivered. Since he had adopted that means he had experienced no trouble whatever in such cases.

MUNDALLA (Average annual rainfall, 23·04in.).

July 6th.—Present : 12 members.

Pruning.—Mr. R. Wiese, who read a paper on this subject, expressed the opinion that a knowledge of the principles of pruning was essential to the production of good fruit. The main trunk needed protection from the sun's rays, which caused hardening of the bark and poor flow of sap. He recommended shaping the tree in order to allow of close cultivation, which would result in a saving of labor. Thinning the fruit was a necessary part of pruning, and did not receive the attention it deserved, and consequently the trees were weakened by that neglect. Another object in shaping the tree was to combat diseases. There should be a greater tendency to reduce the fruit-bearing capacity of the tree, excepting where the tree might run to wood, when it would be necessary to prune for fruit. That could be done either by summer or root pruning to check wood growth and encourage the development of fruit spurs. Root pruning should be done in winter, and consisted in cutting off all roots with a sharp spade at a distance of from 4ft. to 6ft. from the trunk. In cases of old trees, the sides should be treated alternately. The length to which to cut back the tree depended on the growth, the slower the growth the more proportionately should it be cut back. When the tree showed a natural spreading habit the cut should be made above the inward buds, and if the tree tended to grow too closely, the cut should be made above the buds pointing outwards. It if was decided to make a straight growth of a limb, the cut should be made over a bud one year and out the next. Those rules applied to all deciduous fruit trees, with certain modifications for different fruits. All branches crossing or interfering with other branches should be removed. If the cut was large it needed smoothing off neatly and a coat of tar or paint applied to the wound. That would prevent the cut from rotting the limb and killing or seriously weakening the tree, besides keeping the wound healthy and allowing a more rapid healing. In opening up a tree in this way, he did not advise trying to make a perfectly shaped tree from a bad one. The shaping should be done over several years. It should be seen that the tree was not opened up too much at once so as to leave a lot of bare limbs for the sun to burn, but one should aim at a free access of air and sun necessary to develop the wood and buds. All deciduous trees required pruning when the sap was down. Citrus trees should be treated in early spring, just before blooming. Among deciduous trees plums were usually pruned first, then pears, apricots, peaches, and apples. Apples, peaches, and pears were inclined to bear nearer the tips, and young trees should be well headed in during the winter season, both to give shape and strength to the tree, induce wood growth, and prevent them bearing too early, a fault of which most growers did not seem to realise the seriousness. Good and thorough cultivation was absolutely necessary, and without it pruning and spraying, no matter how well carried out, were futile.

MUNDALLA (Average annual rainfall, 23·04in.).

August 9th.—Present : 12 members.

Manuring of Fruit Trees.—The following paper was read by Mr. R. Weise :—"The essential elements of an orchard soil are phosphoric acid, potash, lime, iron, magnesium, and nitrogen. Iron and magnesium are not required in large quantities by plants, and are usually found in sufficient quantities in all soils. But soils are often deficient in one or more of the other four elements and have to be supplied by manuring. Each crop demands a certain admixture of plant food, and it does not matter how great the quantity of some of these elements, if there is not enough of one, or if they are not in a form which can be used by the plants, a perfect crop cannot be produced. The only way to find out the amount of plant food available in the soil is to make a careful analysis. Agricultural chemistry has done a great deal for the people on the land. The practice of manuring is based to a great extent on the analysis of soils and also on the analysis of plant foods taken from the soil by the various plants. In this way it has been found that certain plants and certain parts of plants take more of certain elements from the soil than others, whereas these others may in turn take more largely of some other element. So it is necessary to know what a soil contains and what the plants are using if we wish to make a thorough success of manuring. Nitrogen has been found to be principally required for the formation of the albuminous matter of fruits, and this occurs in the greatest quantities in the seeds or kernels of fruits. This is one of the principal reasons for thinning, especially in the case of stone fruit, so as to get a larger proportion of flesh than kernel by reducing the amount of nitrogen required by the fruit. Nitrogen is found in the soil in the form of nitrates, and these are found in conjunction with organic, or vegetable matter in the soil. This organic matter has the power of converting ammonia, a form in which nitrogen is often applied to the soil, into nitric acid, and nitric acid forms nitrates in conjunction with the potash and soda of the soil, and these are readily taken up by the plants. Nitrogen also promotes leaf and wood growth. The sources from which nitrogen may be obtained as a manure are sulphate of ammonia, nitrate of potash, dried blood, and nitrate of soda, guano, stable manure, and green crop manuring. The cheapest are sulphate of ammonia, dried blood, and green crops. Potash forms the largest part of the ash of fruits. Many soils contain a good supply of potash, but it is in a form in which plants cannot use it, and when this is the case, the addition of lime is advisable. Phosphatic manures have an effect similar to lime, and when there is not sufficient quantity in a soil it is applied as a manure in the forms of sulphate of potash, kainit, nitrate of potash, and chloride of potash. The sulphate is the cheapest form and it is most generally used. Sulphate of potash is easily soluble and is rarely used by itself but with phosphates and, in this way, usually gives best results. Phosphoric acid is needed for the growth of all fruits and it occurs chiefly in the seeds, as does nitrogen, in larger proportions than in the rest of the fruit. Phosphoric acid is applied in two ways, one quick-acting as superphosphates, the other slow-acting such as ground bones, ground phosphate guano, &c. It has been found that most Australian soils are lacking in phosphoric acid and good results are usually obtained by using bone dust in the orchards. But to obtain the best results it needs to be applied in the autumn so that it may become soluble by the time the trees need it for their growth ; later in the season superphosphate should be applied when the tree is in actual growth. In using artificial manures such as ground bones, bone dust, phosphatic guano, &c., they should always be applied some time before the tree needs them as they will then be slowly made ready for the use of trees by the action of the carbonic acid in the water of the soil. Manures easily soluble, such as superphosphates, sulphate of potash, nitrate of soda, sulphate of ammonia, &c., should not be applied until the trees are growing, because they are liable to be dissolved and washed away by heavy rains before the roots get a chance to make use of them. It is also a good plan to give a dressing of these manures at intervals of a month or so as there is less chance of them getting washed away, and the effect on the tree is spread over a longer time. Artificial manures are best spread in the orchard when the trees are full grown, but in the case of young trees spread it around the tree, say, from 4ft. to 9ft. from the trunk according to size and then harrow in. It is always well to remember that it is better to manure regularly and keep a constant supply of manure for the trees than to give them a heavy dressing one year and miss a couple of years. If a tree has made a lot of growth by manuring, and then suddenly finds there is not enough food to supply it, it goes back quicker than it improved, and will be worse than it was before, if it does not die. It is always advisable to apply slow-acting manures along with the quick acting and stimulating kinds, so that the tree has always something to work on after the quick effect is over. Lime as a manure is not often needed in our soils, and where bone manures are used they usually supply all that is necessary. Its chief use is in the effect it has in making stiff soils more friable and less liable to bake, and also for its power of freeing unavailable potash salts. Stable manure contains, if properly cared for, all the elements necessary for all plants, and it is good for making heavy soils more open and light. It should be spread on the surface and ploughed in during early winter. Good cultivation is at all times necessary and more especially when manuring an orchard. The air, sunlight, and rain admitted to the soil by good cultivation assist and are necessary to the chemical actions set up by manures in the soil and helps to keep the moisture in the soil which is necessary for the same purpose, the soil is kept cooler and the roots are more able to search for food, and I regard thorough working of the soil as the best " manure " of all. The main points in manuring fruit trees, I think, are briefly these :—(1) Thorough cultivation ; (2) regular application ; (3) the principal manure needed by fruit trees is potash, which is best supplied in the form of sulphate of potash ; (4) the want of nitrogen is shown by the trees having leaves which appear light-colored and not of a healthy green ; (5) if manuring for fruit alone, apply manure just before the trees come into flower or the effects of the manure will tend to produce wood growth ; (6) peaches, plums, apricots, and other stone fruits require, as a rule, more liberal manuring than pip fruits ; (7) mixture recommended for apples and pears—Bone dust, five parts ; super., three parts ; sulphate of potash, three parts ; apply at the rate of 4lbs to 6lbs. per tree, according to age."

NARACOORTE (Average annual rainfall, 22·60in.).

June 13th.—Present : eight members.

Poultry-keeping for Profit.—Mr. F. A. Holmes contributed a paper on this subject. The writer introduced the subject with an interesting account of the importance of the poultry industry to the Commonwealth, and quoted figures from the Victorian egg-laying competitions. Continuing, the writer expressed a preference for the utility strains of the Black Orpington breed, for not only did that breed give excellent laying returns during the winter months, but the cockerels could always be sold at much above the price of the White Leghorn. The first important point in the successful management of the poultry run was to select good laying strains from which to build up the flock. The birds should be comfortably and cleanly housed and fed at regular hours with the best grain. It was most important to see that they were supplied with a clean supply of fresh drinking water; especially did it apply during the hot summer months. One other important point in the successful raising of the birds was that of hatching the chicks at the right time of the year. Black Orpingtons should be hatched out from the first of July to the end of September, and White Leghorns from the beginning of August to the middle of October. Such a hatching could not be brought about with broody hens so that it would be necessary to resort to artificial incubation. All the heavy breeds should be out by the end of September, and the light breeds not later than the middle of October; but if the season was late and there was plenty of green feed and insect life available, hatching could be made a little later. As a general rule, the aim should be to secure early chicks. Later hatchings were more subject to diseases and the attacks of vermin. An interesting discussion followed, and Mr. Holmes replied to numerous questions.

A further meeting was held on July 8th, when the Hon. Secretary (Mr. G. Turnbull) presented the annual report, which showed that during the past year 11 meetings had been held with an average attendance of 13 members. The officers were then elected for the ensuing term.

TATIARA, August 12th.—Several interesting subjects, including "Farm and Garden Competitions," "Inspection of Gardens," and "Registration of Bulls" were brought before the meeting, and an interesting discussion followed.

WIRREGA, August 12th.—Mr. F. Meier read an extract, "Grafting Fruit Trees," and an interesting discussion followed.

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